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The gold output of Cripple Creek continues to increase, and for the month of January was the largest ever reported. Our correspondent in the camp puts the output at 7,470 tons smelting ore and 10,410 tons milling ore, the total value being $841,320. If production should be kept up at this rate, it would bring the total to over $10,000,000 a year, and it seems not at all unlikely that this figure will be reached, if no unforeseen accident should occur.

Copper production in the United States for the first month of 1897 continued at a high rate, the total reported by Mr. John Stanton, statistician for the producers, being 17,637 long tons, an increase of 2,565 tons, or 17 per cent. over January, 1896. It is evident that our mines have no intention at present of diminishing the output or of any reduction in any very firm. The increase is apparently all taken up, and the market is very firm. European production for the month fell off slightly, the difference being 239 tons, or 3·5 per cent. The United States exports continued very large, the total for the month having been 9,651 tons, a gain of 1,483 tons, or 18·1 per cent. over last year. The increase in exports was thus even greater in proportion than that in production.

A movement is on foot to put the United States Assay Office at Charlotte in North Carolina once more in the charge of a practical mining man, as it should always have remained. The present head of the office, though personally an excellent gentleman, has no practical knowledge of the work required in the office, and has had to rely entirely upon his chief assistant for the actual conduct of the work. The Charlotte office is of considerable importance, especially in view of the growing interest in the gold mines of the South, and it is desirable that it should be in charge of an experienced and practical man who is himself able to supervise properly the work of his assistants and the details of the office, and who will be competent to arrange and conduct the probable enlargement of that work. It is to be hoped that the change indicated may be made.

The American Institute of Mining Engineers has held its winter meeting in Chicago this week, revisiting that city after an interval of three years and a half. The last meeting held there was a highly successful one in some respects, though the attractions of the Columbian Exposition somewhat interfered with the attendance of members at the sessions. A great deal of attention was called at the meeting just closed to micro-structure of iron and steel and the work which Messrs. Howe, Sauveur, Arnold and others have been doing in studying the obscurer variations in structure and composition of the metal upon which so much depends. The concentration of a meeting upon certain questions, which has been attempted, has many things to commend it; but perhaps it again suggests the idea that the Institute may hereafter have to be divided into sections as it grows larger, and the work of its members becomes more and more specialized—as it is sure to be.

The question whether the combination of the Lake Superior iron-ore shippers will be renewed this season is quite anxiously discussed just now by the iron-makers. Circumstances have materially changed since a year ago, when the pool was formed which succeeded in keeping lake ores at high prices all the year. The largest consumers are now the largest producers, and can supply their own wants very nearly at actual cost of mining and carrying. It is quite likely that the other companies may believe it to their interest to sell all they can, rather than to restrict buying by maintaining high prices. It is possible even that there may not be any agreement at all, in which case there may be a good deal of Mesabi ore from the newer mines sold at low prices. Some of the companies seem to be trying to reduce costs, and the Metropolitan Iron and Land Company, the biggest producer on the Gogebic Range, has cut down wages 10 per cent. as a beginning. Whether its example will be followed by others is still uncertain, but altogether probable.

An event reported this week, which will certainly cause a great amount of comment and commotion in the iron market on both sides of the Atlantic, is the sale of steel rails by the Carnegie Steel Company, of Pittsburg, to English railroads. It is understood that the orders include 25,000 tons for the London & Northwestern Railway, and 25,000 tons for the Southeastern, while other orders in addition to these—including a heavy contract for Japan—will bring the total sale of rails for export up to about 100,000 tons during the week. As to price, nothing can now be ascertained, but the current quotation for steel rails in England is a little over $23 per ton at mill. With due allowance for freight charges this would net the makers here between $18 and $19 per ton at the mill, which is quite as much as they will receive for a considerable part of the orders taken for home delivery, and will probably leave them a fair margin of profit.

The important point is that an American firm should have been able to invade the English market and take orders from English companies. This will astonish the trade in Great Britain, and will probably awaken

a good many to the fact that costs of production have been reduced in this country—owing to abundant supplies of raw material, improved machinery and efficient labor—to a point which makes the United States an element which must be reckoned with hereafter in all the iron markets of the world. It must be remembered that in this case our steel makers are not simply competing for business in a foreign market; they have invaded the home market of their chief competitor and succeeded in making these large sales. This is the first important transaction of the kind, but in all probability it will not be the last by any means, a point which will cause British manufacturers to do a great deal of thinking, though they will doubtless say that the' present movement is only temporary.

An Aluminum Patent Decision.

On Monday of the present week, February 15th, a decision of much importance to the metallurgical world was rendered by the United States Circuit Court of Appeals for the Sixth Judicial Circuit, sitting at Cincinnati, O. This decision was in the long-pending suit over the ownership of the Bradley electric patents for extracting aluminum from its ores and by it the title to those patents is held to be in the Cowles Company.

It will be remembered that early in the course of their work on the extraction of aluminum, the Cowles Brothers bought certain inventions which had been made by Mr. Bradley, and which covered some points in the Cowles process. In 1891 and 1892 Mr. Bradley took out three patents for which he had applied in 1883, and which the Cowles claimed were conveyed to them in their former contract. Nevertheless, Mr. Bradley sold these patents to others, and hence the suit just decided.

The three patents in dispute were No. 464,933 issued as of date December 8th, 1891 ; No. 468,148, February 2d, 1892, and No. 473,866, April 12th, 1892. Of these the second, No. 468,148, is the most important, for it is intended to cover according to its claims, "fusing the refractory ores or compounds progressively by a source of heat concentrated directly upon it rather than by an external furnace and as it becomes fused, effecting electrolysis by passing an electric current therethrough between terminals which are maintained in circuits, with the fused bath whereby the process is rendered continuous," etc.—or, as stated in another claim, electrolyzing the fused ore or compound "by passing an electric current therethrough of sufficient volume to continue and maintain the fusion and effect electrolysis and adding fresh material from time to time to preserve the bath constant."

It is to be noted that the original applications for all three of the patents were filed in February, 1883, so that they had been hidden away in the Patent Office and dormant nearly nine years, when the inventor revived them and obtained their issue about the end of 1891, and early in the following year.

The decision has been so recently rendered that we are unable to present the digest of its points at the present time; but we hope to give a fuller statement, with an abstract of the patents, in our next issue. The fact that the title in the Bradley patents has been awarded to Cowles is the important point.

What effect this decision may have upon the progress of other litigation affecting the production of aluminum is uncertain, but it seems probable that the litigation between the Cowles and the Pittsburg Reduction Company for producing aluminum, which has been for some time resting, will be renewed in view of the new conditions developed by the present decision.

The most desirable result to the public would be, of course, the opening of the manufacture of aluminum to free competition. Even should this be done, the present producers both in this country and Europe would retain the great advantages given them by long experience and the possession of complete and well-established plants in successful operation. At present the increase in the use of the metal depends chiefly upon the reduction of its cost.

The End of the Steel Rail Pool.

The gradual disintegration of the various pools and combinations in the iron trade, which has been going on for some months past, culminated last week in the breaking up of the Steel Rail Association, which had been considered as the most stable and permanent of them all. It was a combination formed by a few large companies, which had many reasons for working in concert; it affected only a part of the business of each, and it dealt with a single product, always sold in comparatively large quantities and to a single class of customers. No production in the whole range of the iron trade could be so easily controlled or so readily brought under combination management. Moreover, the heavy first cost of rail plants prevented the starting of outside works for the purpose of selling out to the combination, which proved such a continual source of trouble to the nail pool and some others. The pool has been a remarkably stable one, as its history shows, and has succeeded in maintaining high prices for its products through several years of depression and falling quotations.

The immediate cause of the breaking up of this pool is still in dispute, charges and countercharges being made by different members. While the final collapse was sudden and generally unexpected, some such result has been looked for by close observers in the trade ever since the end of the steel billet pool a short time ago, since the underlying causes of the latter were sure sooner or later to affect the rail business. The Lackawanna Iron and Steel Company is accused of being the first to break out of the combination; but the Carnegie Steel Company in Pittsburg and the Illinois Steel Company in Chicago were the leading actors.

We have at different times criticised the action of the combination in maintaining unreasonably high prices. In 1895 the price, which began at $22 per ton at mill, was raised to $26 and then to $28; at the latter figure it was maintained all through 1896, in spite of the protests of the railroad companies. At the same time it was well known that members of the combination had taken orders for export at prices ranging from $21 to $23. In all the period of the existence of the pool, large sums have been paid to certain mills to keep them out of the market. Thus the Maryland Steel Company had $400,000 in 1895, and two Ohio concerns are said to have been paid $160,000 in 1896.

The high price of rails, together with light earnings, kept down the rail output materially. In 1895 it was 1,066,000 tons, but in 1896 it fell to a little below 800,000 tons, including exports. The building of new railroads was light during the year, but even with this allowance the production was much below the normal allowance for renewals, and it would doubtless have been much greater on a lower price.

At the opening of this year the combination seemed willing to concede something, and fixed the price at $25 per ton at mill, but even this seemed too high when compared with the prices of raw material, and of other finished products. With steel billets selling at $15@$16 in Pittsburg the difference was still too great. It was formerly considered that a difference of $5 per ton between billets and rails was a fair allowance, but at the present time this is too much, and $4, or even $3, would be nearer the true difference in cost. The steel rail is really, so far as handling and labor are concerned, the simplest form of finished material. The cost, moreover, decreases with the size of the rail, and it must be remembered that this has been steadily increasing. Only a few years ago a section weighing 56 pounds to the yard was a heavy rail, but now 70 pounds, 80 pounds and over are quite common, and the New Haven Company is relaying its main line with rails of 100 pounds to the yard. If billets can be sold at $15 or $16, certainly $25 was an exorbitant price for rails.

The break-up of the pool began by the taking of some large orders at $20 per ton at mill, and the price almost immediately went down to $18, while it is said that some large orders were placed at $17 in Chicago. There were rumors even of $15 contracts, but they were not authenticated. A slight reaction followed the break, but it seems quite possible now to place orders at from $18 to $20, and it is quite likely that this will be the ruling quotation for some time to come. It ought to be a satisfactory one, for there is no doubt that rails can be made at a profit under it at the present time.

The immediate effect has been the placing of very large contracts by railroad companies both East and West. All the rail mills will be actively employed in filling these contracts for some time to come, and the effects will be felt in some degree through the entire trade. The demand for raw material will be heavy, and already there is reported increased activity in the furnaces producing Bessemer pig. The change is not sufficient to make a "boom," but it will help to bring about the needed improvement in the iron trade, and perhaps to serve also as an object lesson on the relative merits of combination and competition.

NEW PUBLICATIONS.

HAND BOOK OF THE MINING LAWS OF BRITISH COLUMBIA: SECOND EDITION. By J. H. Brownlee and James Brady. Vancouver, B. C.; published by the authors. Pages, 72. Price, 25 cents.

This little manual gives in a form convenient for the pocket summaries of the Mineral Act and the Placer Act of British Columbia, with all the forms and certificates necessary in filing notices of location and similar documents. It is of especial use now, when so much work is being done in the Province and so many miners are entering the new districts.

SEVENTH BIENNIAL REPORT OF THE INSPECTOR OF COAL MINES OF THE STATE OF COLORADO, 1895-96. David Griffiths, State Inspector. Denver, Colo.; State Printers. Pages, 80.

This report is chiefly statistical, but contains also some interesting notes with regard to the coal mines of the State. The industry is one of importance in Colorado, the total production in 1896 having reached 3,371,633 tons of coal and 324,694 tons of coke. The value is somewhat above the average for the United States, being given at $1.50 per ton at the mine. The inspector suggests several changes in the law, most of which seem to be based on sound principles. The proportion of accidents in the Colorado coal mines is rather high; in 1896 there were 20 fatal accidents, in which 68 lives were lost, 49 of them in a single explosion. There were 59 non-fatal accidents also. The averages given are one life lost for 49,582 tons of coal mined. The proportion was, of course, raised to an abnormally high point by a single accident, but it is still high if this be deducted.

The Colorado inspector seems to have performed his duties as well as possible under a somewhat defective law, and he has presented a careful and interesting report.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

United States Life Saving Service—Annual Reports of the Operations for the Fiscal Years, Ending June 30th, 1885 to 1895. Washington, D. C.; Government Printing Office.

Seventh Biennial Report of the Inspector of Coal Mines of the State of Colorado, 1895-96, to the Governor, Harry A. Lee, Commissioner. Denver, Colo.; State printers. Pages, 78.

Handbook of the Mining Laws of British Columbia for Miners and Prospectors. Vancouver and Rossland, B. C.; J. H. Brownlee and James Brady. 1896-97. Pages, 71. Price, 25c.

Engineering Chemistry: A Manual of Quantitative Chemical Analysis. By Thomas B. Stillman. Easton, Pa.; Chemical Publishing Company, 1897. Pages, 523; illustrated. Price, $4 50.

The Mechanical Engineering of Power Plants. By Frederic Remsen Hutton, New York; John Wiley & Sons, London, England; Chapman & Hall, Limited, 1897. Pages, 725; illustrated. Price, $5.

Annual Report of the Comptroller of the Currency to the Second Session of the Fifty-Fourth Congress of the United States, December 7th, 1896. *Volume I.* Washington, D. C.; Government Printing Office. Pages, 822.

The Journal of the Iron and Steel Institute. Volume L., *No.* II. 1896. Edited by Bennett H. Brough, Secretary. London, Eng.; E. & F. N Spon, Limited. New York; Spon & Chamberlain. Pages, 507 illustrated.

Memorandum on the Comparative Statistics of Population, Industry and Commerce in the United Kingdon and Some Leading Foreign Countries. London, England: H. M. Stationery Office. Pages, 54. Price, in New York, 18c.

Proceedings of the Twenty-second Annual Convention of the American Bankers' Association, held at St. Louis, Mo., September 22d, 23d and 24th, 1896. James R. Branch, Secretary. New York; published by the Association. Pages, 262.

Transactions of the Federated Institution of Mining Engineers, Volume XII., Part 2. Newcastle-upon-Tyne, Eng.; published by the Institution. 1897. Pages, 562; with map. Diagrams and illustration. Price, in New York, $4.20.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested. Letters should be addressed to the MANAGING EDITOR. We do not hold ourselves responsible for the opinions expressed by correspondents.

The Blue Mountains in Utah.

Sir: The Blue Mountains of Southeastern Utah, which are receiving the attention of gold hunters at the present time, are located in San Juan County, and are reached by buck-board routes, daily, from Thompson Springs, on the Rio Grande Western Railroad, 85 miles north, and from Dolores, Colo., 75 miles east, on the Rio Grande Southern Railroad, from which latter point the trip is made tri-weekly. This range of mountains juts up from the surrounding desert from an altitude of about 7,000 ft. above sea level to a height of 11,400 ft. The surface formation is sedimentary, being sandstone, slates and decomposed porphyry, all of which carry free gold, to a greater or less extent. These mountains course almost due north and south for a distance of 25 miles and have an east and west breadth of about 10 miles; they are well covered with pine and aspen, suitable for fuel and timbering purposes, while three small streams and innumerable springs furnish an ample supply of water for milling operations.

The Gold Queen Mining Company, of Salt Lake City, has two patented claims here and a 10-stamp mill, with stamps weighing 850 lbs. each. The first run of 120 tons of ore, yielded $9 gold per ton, on the plates, with a fair quantity of concentrates yet to be treated. Captain Jackson, of Colorado, is operating a 5-stamp sample mill on ore from the Gold Dream claim and getting $20 to $40 per ton in gold, it is reported. Copper in the form of malachite, is found in fair quantities in the slates on the north end of the range. Lignite coal is found around the base of the mountain.

M. E.

SALT LAKE, Utah, Feb. 2, 1897.

Drying Limonite Ores.

Sir: Replying to the inquiry of "W." from Colorado Springs in your issue of February 6th respecting the drying of limonite ores, I would say that I have had considerable experience in such matters. Your correspondent will find in the *Engineering and Mining Journal* for September 1st, 1894, page 200, some notes on the subject, and in my *Iron Making in Alabama*, a copy of which can be had on application to the Alabama Geological Survey, University P. O., Ala., there are some things of interest.

In drying limonite we have to consider the hygroscopic (atmospheric) moisture, completely expelled at 120° Fahr. and the combined water, or water of constitution, which requires a dull red heat for its removal.

If "W." wishes merely to get rid of the ordinary moisture present in almost every kind of ore, he need not carry the heat beyond the boiling point of water. But if he wishes to get rid of the combined water also, and this may exist in ordinary limonites up to 10%, he must raise the temperature to dull red. In ordinary practice these two operations are conducted in the same kiln and at the same time. A gas-fired kiln is the best and I know of no better kiln than the Davis-Colby. As to the fineness of the ore, this will depend somewhat upon circumstances, but for the most part the ore should pass a 3-in. ring. The cost per ton will vary according to the cost of fuel, but with good gas coal at $3, the cost per ton of calcined ore should not exceed 15c.

If "W" will communicate directly with me, I may be able to reply to his questions more definitely. The experience with the Davis-Colby kiln in this State covers now several years, and a great deal of limonite has been calcined in it, using bituminous coal and any suitable producer. We have had no experience in the use of wood in the producer, but charcoal has been employed successfully.

WM. B. PHILLIPS.

BIRMINGHAM, Ala., Feb. 9, 1897.

ABSTRACTS OF OFFICIAL REPORTS.

Quincy Mining Company, Michigan.

The report of this company for the year ending December 31st, 1896, shows that the product of the mine was 20,370,725 lbs. of mineral, yielding 16,863,477 lbs. of refined copper. The receipts for the year were, from sales of copper, $1,842,117; from silver, $22,080; total, $1,864,197, an increase of $202,751 over 1895. The running expenses at the mine were $893,696; smelting, transportation and all other expenses, $214,873; total, $1,108,569, leaving a mining profit of $755,628, which is $63,554 more than in 1895. To this is to be added $14,435 for interest, etc., making the total net income for the year $770,063.

To these earnings were added $1,007,501 brought over from the previous year's account and $150,000 from the trust account, making a total of $1,927,564. Four dividends were paid: February 17th, $200,000; April 10th, $200,000; August 17th, $300,000; December 8th, $300,000; a total of $1,000,000, leaving a balance of $927,564 carried forward to 1897.

The statement of assets and liabilities at the close of the year is as follows: Cash and copper, New York, $729,072; cash at mine, $16,736; supplies, etc., at mine, $140,631; accounts receivable, $183,452; total, $1,069,891. Accounts and balances payable amounted to $142,327, leaving a net balance of $927,364, as above.

The statement of the trust account is as follows: Installments (paid on scrip), $935,838, against which stand construction, $281,965; mineral lands, $550,000; interest and expense, $22,644; loans, $60,000; accounts receivable, $16,498; cash, $4,731; total, $935,838. The company's capital stock of $1,250,000 will be increased after April 16th next, when the last installment on the outstanding scrip will be payable, to $2,500,000, divided into 100,000 shares of $25 each.

The report gives the following summary for the year: Average force employed, 1,042 men; average number of miners, 379; average wages of miners on contract, per month, $52; yield of mineral per fathom of ground broken, 576 lbs.; refined copper per fathom of ground broken, 477 lbs.; total rock mined, 637,113 tons; total rock hoisted, 577,024 tons; total stamp rock treated, 555,543 tons; product, mineral from stamp mill, 15,251,410 lbs.; from rock houses, 5,119,315 lbs; refined copper produced, 16,863,477 lbs.

From the statements given we find that the refined copper was 1·32% of the rock mined, or 1·52% of the stamp rock treated. The average receipt for refined copper was 11·05c. per lb. The cost was, for mining, 5·30c,; for smelting, etc., 1·28c.; total, 6·58c., leaving a net return of 4·47c. per pound. The mining cost was $1.40 per ton of rock handled.

The report of Mr. S. B. Harris, agent at the mine, says that the total depth of shafts sunk was 587 ft. and of winzes, 635 ft., making in all 1,222 ft. sinking. No. 2 shaft at the close of the year was 4,085 ft. deep, No. 4 was 4,073 ft. and No. 6 was 3,920 ft.

The whole amount of drifting done during the year was 12,469 ft. The longest level in the mine is the 42d, the entire length of which is 5,350 ft., it being about 1,804 ft. south of No. 4 shaft, and 1,305 ft. north of No. 6 shaft. The 39th level is extended the furthest point south of our present workings, the distance being 2,285 ft. south of No. 4 shaft. The level extended the furthest north in the mine is the 41st, its present face being about 1,485 ft. north of No. 6 shaft.

The principal stoping done during the year tributary to No. 4 shaft was at different points, ranging between the 28th and 48th levels, north and south. Quite a little profitable stoping (though mostly in low-grade vein) was also done at different points between the 10th and 38th levels, principally north of shaft.

At No. 6 shaft the stoping done was at various points at and between the 32d and 46th levels, north and south, but mostly north of shaft. No new feature or developments of special interest worth mentioning were noticeable in either the general character or productiveness of the lode, as the same peculiarities in kind of the vein formation apparently continue much the same as have been observed here for years past.

The construction work in 1896 consisted principally in the building of a new mine office, and in making an extension to No. 4 coal yard. The new office is a substantial two-story building 45 × 56 ft. of Portage Entry red sandstone. It is pleasantly situated, and makes a very convenient and serviceable office.

At the stamp mill no important additions or changes were made, and the five heads of stamps were fully supplied with rock most of the time. The amount of rock stamped during the year was an average of 385 tons, 403 lbs. of rock per head for 24 hours of actual running time.

Quick Shaft Sinking on the Witwatersrand.—What is claimed as the quickest shaft work on record was reported in December at the Vogelstruis Consolidated Deep Mines on the Witwatersrand. Three shafts are in progress and the statement shows as below:

	Total depth.	Sunk during month.	Timbered during month.
East shaft.....	590 feet.	56 feet.	62 feet.
Center shaft.....	717 "	141 "	147 "
West shaft.....	715 "	80 "	80 "

The total for the month was 277 ft. sunk and 289 ft. timbered. In the east shaft the work is by hand with one power drill; in the west shaft by hand only, and in the center shaft there are four power drills at work. The cost for December is not given, but in November, the preceding month, it averaged $85.94 per foot sunk. Mr. A. R. Robertson is in immediate charge of the work, and it is under the general supervision of Mr. T. H. Leggett, who is well known in this country.

THE CHICAGO MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

The seventy-second meeting of the Institute began in Chicago on Tuesday, February 16th. The programme for the meeting had been arranged by the local committee, of which Mr. Robert W. Hunt was chairman. This provided for sessions to be held on Tuesday evening; Wednesday morning and afternoon and Thursday morning, for the transaction of business, the reading of papers and discussion.

The meeting was duly opened on Tuesday evening, February 16th, at Kimball Hall, Chicago, E. G. Spilsbury, president of the Institute, presiding. Upward of 150 members were present. Biographical sketches of Joseph D. Weeks and Alexander Tripple were read. A fine illustrated lecture on the Chicago Drainage Canal was given by Mr. James F. Lewis. Fully 100 views were shown on a stereopticon and the lecture was greatly appreciated. Mr. Lewis treated the subject almost entirely from the geological standpoint, commencing with the glacial age and gradually coming down to the present time. Many interesting views were shown on the stereopticon, among them being fossils found in the excavation of the canal. Boulders of native copper were shown, one of 55 lbs. having been found while excavating in the canal 20 miles from Chicago, and Mr. Lewis told how these boulders probably found their way down into Illinois from Michigan in the great glacial swoop of ages ago.

Wednesday evening a reception was held at the rooms of the Chicago Technical Club, the entire evening being given up to pleasure. On Thursday evening most of the members present attended the banquet at the Auditorium Hotel. On Thursday afternoon a visit was made to the Field Columbian Museum and on Friday afternoon a special train on the Illinois Central Railroad conveyed the members to the works of the Illinois Steel Company, at South Chicago, and to the shops of the road at Burnside. The Illinois Steel Company served a lunch. Invitations were also received for the members to visit the following places: Art Institute, Chicago Academy of Sciences, University of Chicago, Armour Institute, Fraser & Chalmers, Gates Iron Works, Crane Elevator, Chisholm, Boyd & White Company and the Western Electric Company. Other busness meetings were held Wednesday morning and afternoon and Thursday morning. The following papers were read at the meetings, in addition to Mr. Spilsbury's presidential address:

The Geology of the Magnetites near Port Henry, N. Y.; by J. F. Kemp, New York.

The Precipitation of Gold by Zinc Threads from Dilute and Foul Cyanide Solution; by Alfred James, Glasgow, Scotland.

The Manganese Deposits of Panama; by E. J. Chibas, New York.

Current Theories of the Hardening of Steel. A discussion of Mr. Sauveur's paper; by F. Osmond, Paris, France.

Discussion of Mr. Sauveur's paper on the Micro-structure of Steel and the Current Theories of Hardening, by Professor Ledebur and others.

The Distribution of the Precious Metals and Impurities in Copper, by Edward Keller, Baltimore, Md.

Sulphur in Embreville Pig-Iron, by Guy R. Johnson, Embreville, Tenn.

The Handling of Material at the Blast-Furnace, by Axel Sahlin, Sparrow's Point, Md.

The Spitzkasten and Settling-tank, by R. H. Richards and C. E. Locke, Boston, Mass.

Sorting before Sizing, by R. H. Richards, Boston, Mass.

The Calorific Value of Certain Coals, by N. W. Lord and F. Haas, Columbus, O.

The Chicago Drainage Canal, by J. F. Lewis, Chicago, Ill.

Influence of the Metalloids (Sulphur, Phosphorus and Silicon) in Cast Iron, by Guy R. Johnson, Embreville, Tenn.

The Genesis of Auriferous Lodes from a Chemical Point of View, by Prof. John R. Don, Dunedin, New Zealand.

Direct Generation of Electricity from Carbon, by R. H. Sanders and H. M. Chance, Philadelphia, Pa.

Note on the Determination of Insoluble Phosphorus in Iron Ores, by Howard W. DuBois and Charles T. Mixer, Philadelphia, Pa.

Mining Methods in Northern Minnesota, by Prof. F. W. Denton, Minneapolis, Minn.

Preliminary Note on the Working of Edison's Briquettes in the Blast-Furnace, by Leonard Peckitt, Catasauqua, Pa.

Analysis of Waters of Illinois, by J. A. Carney, Aurora, Ill.

Discussion of Professor Christy's paper on the Solution and Precipitation of the Cyanide of Gold, by Alfred James, Glasgow, Scotland.

The Hand Auger and Hand Drill in Prospecting Work, by Charles Catlett, Staunton, Va.

The Cement Materials of Southwest Arkansas, by J. C. Branner, Stanford University, California.

The Chromite Deposits on Port au Port Bay, Newfoundland, by Geo. W. Maynard, New York.

More than 100 new applications for membership were received during the past year and were acted upon at the meeting. The ladies were in such evidence at the meeting that a committee of 24 of them were appointed as a Ladies' Committee to manage the social side of the meeting. The headquarters of the meeting was at the Auditorium Hotel, the Banquet Hall having been used for the main business.

We give below abstracts of a number of the papers presented at this meeting:

THE MANGANESE DEPOSITS OF PANAMA.

BY EDUARDO J. CHIBAS.

This paper describes generally the manganese deposits located near the Caribbean Sea in the department of Panama, Republic of Columbia, about 45 miles northeast of Colon, and now operated by the Caribbean Manganese Company, of Baltimore. The paper is accompanied by a map and a number of illustrations.

THE GEOLOGY OF THE MAGNETITES NEAR PORT HENRY, N. Y.

BY J. F. KEMP.

It is impossible to give a brief abstract of this paper, which is an elaborate monograph on the deposits of magnetite iron ores on the west side of Lake Champlain in New York, and which have been extensively worked at Port Henry, Mineville and other points. With the exception of the great ore-beds at Cornwall, Pa., and perhaps of the deposits of titaniferous iron ore at Lake Sanford, N. Y., these are the largest single group yet developed east of the Lake Superior region. They occur on the contact between gabbro and gneiss, and their geological relations differ from those of other magnetites further south, so far as the latter have been observed; and Professor Kemp believes that they may serve to shed some additional and special light upon the obscure question of the geological history of this type of ore-body.

The paper is very full, and is accompanied by maps and a large number of geological sections, without which much that is said in it would be difficult to understand.

FAULTING IN GLACIAL GRAVEL.

BY W. S. GRESLEY.

In discussing Mr. Henrich's paper on this subject, read at the Colorado meeting, the author presented sketches of a section of glacial morainic material at Helle-ylt, Norway, containing angular masses of bonded sand. The only way of accounting for their presence was by supposing that the bed of sand which furnished the blocks of it in the moraine was frozen solid at the time the fragments were broken off it, transported and buried in the general debris. The idea that the masses of sand had once been sandstone, and in that condition had been broken and dumped and buried in the morainic material, could not be entertained, because there is probably no sandstone in the district, but there was a good deal of the same sand in natural position. Since then I have seen near Blossburg, in Tioga County, Pa., a section of coarse gravel about 30 feet high, through which, from top to bottom (as far as the exposure went), ran a nearly vertical vein of fine yellow sand. In this case, also, it is possible to me that the gravel bed was probably in a frozen condition at the time it became split open and received the vein of sand.

May not the faults in Mr. Henrich's sand and gravel cut have been produced by pressure upon the beds when frozen hard, and therefore presumably in a fit condition for breakage and dislocation as observed?

THE CALORIFIC VALUE OF CERTAIN COALS.

BY N. W. LORD AND F. HAAS.

This paper gives the results of experiments conducted in the metallurgical laboratory of the Ohio State University with the objects of determining: First, the calorific powers of a number of coals in general use in Ohio; and second, how far ordinary analytical methods could be used as a basis for computing these values. Incidentally a test of the performance of the calorimeter was involved. The chemical work has been carried on in the department for some time, so that the whole investigation has extended over three or four years. The Mahler calorimeter used was purchased from L. Golaz in Paris, and is practically identical with the one described and figured in *The Mineral Industry*, Vol. I., page 97.

The tests included a large number of specimens of coal from Pennsylvania, Ohio and West Virginia, taken from the seams or beds known as the Pittsburg, the Upper Freeport, the Middle Kittanning (including the Hocking Valley), the Mahoning, the Thacker and the Pocahontas. The results are given in a series of tables in which a great deal of information is condensed. Attempts to derive a general law for all the coals examined were abandoned, and the question was taken up of how far the coal of a given seam can be regarded as of uniform quality. The results of the tests seem to indicate the interesting conclusion that the character of a coal seam, as far as its fuel value is concerned, is a nearly constant quantity over considerable areas. The determination of the value for seams would be of great use, as the rapid proximate analysis, or, for that matter, merely the determination of ash and moisture, in low-sulphur coals, would be sufficient to grade coals of the same vein. Of course it is dangerous to argue from so few examples; but the proposition seems reasonable. At least, it is hoped that further work may confirm these conclusions.

A NOVA SCOTIA COPPER DEPOSIT.

BY HENRY LOUIS.

In discussing Mr. E. J. Schmitz's paper on "Copper Ores in the Permian of Texas," read at the Pittsburg meeting, the author says that the copper ore bed in Texas was compared with the Mansfield *Kupferschiefer*, but it seems to present closer analogies with a small deposit on the same side of the Atlantic, in Nova Scotia. These copper-deposits are known in several places; but that examined is at the village of New Annan, on the banks of the French river. This district has been determined as being of Permian age. The following is the section, very imperfectly exposed in a few shallow levels, described in ascending order: 6. Red sandstone, moderately fissile and markedly false-bedded. 5. Lower nodule-bed, 1 in. to 6 in. thick, of fissile micaceous sandstone, containing obscure plant remains converted into anthracite, chalcopyrite, chalcocite and iron pyrites. 4. Very coarse grit or, in places, red sandstone; thickness and character variable. 3. Upper nodule bed, 6 in. to 2 ft. thick exceptionally, generally about 10 in. 2. Soft, gray, friable shaly sandstone, with nodules of copper ore. 1. Red sandstone.

All these strata lie flat, in places quite horizontal, in places dipping toward the river at 5° to 10°. The copper nodule beds are exposed in two places, about a mile apart; but it is doubtful whether they are continuous over the area. The upper nodule bed is the more important one; the nodules vary in weight generally from ¼ oz. to ½ lb., but have been found up to 1½ lbs. They consist of very pure chalcocite, but also some of covelline, more or less pure, and of other indeterminate copper minerals, possibly all alteration products of chalcocite and chalcopyrite. All the nodules were coated with carbonate of copper, which had also filled up any cracks and had impregnated the sandstone bed to a certain extent.

Deposits of these ores seem almost invariably to be of Secondary origin, so that it becomes important to know whether the Texas Permian deposits are exceptions. In spite of the curious and persistent occurrence of copper ores in Permian formations all the world over, Mr. Louis is not inclined to ascribe to these nodule deposits any contemporaneous origin, but believes them to have been produced much later than the formation, and perhaps even partial consolidation, of the beds. The part played by the wood remains is doubtful; these may, of course, have acted as reducing agents, precipitating the copper ores from a solution

that was percolating through the porous beds. If so, the copper was probably dissolved as a sulphate and the probability of the original deposit of these ores as sulphides grows stronger.

SULPHUR IN EMBREVILLE PIG-IRON.

BY GUY R. JOHNSON.

It is a common observation among those engaged in the iron business, that the lower (the less graphitic) grades of pig-iron show a rough face on the pig. As such irons are always low in silicon, the generally accepted belief is, that this rough face is due to the absence of silicon. Certain investigations, however, made by the writer on Embreville pig-iron, and extending over nearly a year's time, seem to indicate another cause, namely, the giving-off of included gases, particularly sulphurous oxide (SO_2). It is, of course, the tendency of such gases to rise through the iron, escaping into the air; and the more liquid the iron, and the longer it remains liquid, the greater the chance for such escape. The lower grades of iron, being always colder, tend to solidify early, and before the included gases can completely escape. A certain proportion, however, does force its way up through the pasty metal, which it pushes aside; and the iron, being too cold to flow back, remains in the position into which the gas, during its passage, has shoved it, thus presenting, on cooling, a pitted appearance. The tables given in the paper exhibiting the results of analysis on a number of samples of pig-metal seem to indicate the correctness of this view. A study of these tables will show that when the iron chilled promptly the sulphur contents were found to be much higher than otherwise.

If this theory is correct, the question arises: Is it not possible, in ordinary foundry practice, to get rid of the sulphur by simple heating, followed by vigorous stirring of the liquid castiron? To test this, the writer had several experiments made in the cupola of the foundry belonging to the Embreville estate. Owing to the small size of this furnace, it was impossible to heat the iron to the temperature desirable. The mean of the experiments, however, showed a reduction of one hundredth of 1% in the sulphur percentage of the iron as poured direct from the cupola, effected by pouring the same iron into a ladle and vigorously stirring it.

THE SPITZKASTEN AND SETTLING TANK.

BY R. H. RICHARDS AND C. E. LOCKE.

In this paper the authors say that the present tendency in this country is generally to do away with slime-sorting or "classification," and simply to take the overflow from the hydraulic classifier and divide it among the tables by means of a distributing-tank. We must therefore look to the old country to see what means of slime-sorting have been approved. The *Spitzkasten* is the only apparatus recognized by such authorities as Rittinger and Linkenbach. They therefore undertook a series of experiments with the *Spitzkasten*, the results of which are presented with the aid of a number of diagrams. By the experiments recorded the authors are satisfied that the *Spitzkasten* is not a scientifically exact instrument. The trommel, jig, *Spitzlutte* and separator, when well constructed, and the slime-table, when properly adjusted, are all scientifically accurate instruments; that is to say, when fed with suitable material, and not overfed, they will all do perfect work. They depart from scientific accuracy only through over-feeding, or through the feeding of material that is not susceptible of perfect work, or through imperfect construction. The first two of these causes are due to the demands of commerce; the last, to ignorance. The *Spitzkasten*, on the other hand, is scientifically imperfect. It cannot be fed with such a product, or at such a speed, or so adjusted to suit its feed, that it will do perfect work. There is always the tail-undercurrent to contaminate the product from the spigot. To cure this defect three means have been considered, consisting in the use, respectively, of a balanced hydraulic water-supply, an upward current of hydraulic water and a perforated board. Much seems to depend upon the proper adjustment of current. With regard to the settling tanks, they say that the overflow from a *Spitzkasten* with balanced hydraulic water must go to a settling-tank to extract the pulp which is to feed the last table, as the slime-water has not been lessened, and may have been increased in volume. The plates accompanying this paper throw a good deal of light upon the settling tanks. Feeding with a horizontal current at the surface, above the surface or with a plunging stream are all bad. To make the most of a settling-tank, the current of feed-slime must be brought to approximate rest as soon as possible after entering the tank, and a very slow movement must be established, which is of uniform velocity from top to bottom and from side to side. An even surface-distributor across the inlet-end, deep enough to slow the current greatly, and with a bottom steep enough to prevent the settling of slime, and this followed by two gratings made up of vertical bars 1 in. square with 1 in. spaces, the bars of the second grating staggered with those of the first, will probably prove satisfactory.

THE POTSDAM GOLD ORES OF THE BLACK HILLS, SOUTH DAKOTA.

BY FRANK CLEMES SMITH.

In this paper, after describing generally the geology of the Black Hills region, the author says that the gold ores of the Potsdam constitute a group of much greater importance than all of the other silicious ores together. Most of these ores may be described as thoroughly reorganized sandstones, containing quartz crystals, calcite and fluorite. Those which have not been oxidized carry considerable fine-grained pyrite and are locally called blue ores; the oxidized ores are stained with iron and called red ores. Analyses of typical samples of red ore showed 8·4 oz. tellurium, 0·57 oz. gold and 2·88 oz. silver to the ton; of blue ore, 4·03 oz. tellurium, 0·33 oz. gold and 10·55 oz. silver to the ton. Copper is usually found in traces. The occurrence of these ores is widespread but eccentric. The mineralization is to be referred to igneous action.

Recently gold ores have been found in the carboniferous limestone near Ragged Top, at first in boulders and pebbles and later in wedge-shaped lenses. An analysis of this ore from the Dacey showed 29·26 oz. tellurium, 17·34 oz. gold and 1·21 oz. silver per ton. Scattered through the limestone are many flinty nodules said to be rich in gold.

The history of the Potsdam ores dates from 1877, when several mines were located near Green Mountain. A mill was put up in 1879, but did not succeed in saving the gold. Various processes were tried with very little success. In 1889 the Golden Reward Company put up a chlorination plant, and later cyanide plants were tried by the Black Hills Reduction Company and the Deadwood & Delaware Smelting Company. While it formerly did not pay to work these ores for less than $30 per ton, they will now return a profit on $15. Mining is usually not expensive in the ore bodies. Chlorination and cyanide lixiviation have developed into considerable industries in the district.

The tonnage of Potsdam ores treated is rapidly increasing; in 1896 there were about 282,000 tons, of a total value of over $5,000,000. Besides the main connected area, there are several smaller and disconnected areas of these ores in the neighborhood of Deadwood and Lead City. In these there are some valuable mines. At Galena, 12 miles southwest of Deadwood, an old camp abandoned some ten years ago has recently been revived and a smelter is actively at work. These mines are in the Potsdam ores, evidently mineralized from igneous dikes. This district has not heretofore received much attention.

Another description of ores which may be classed as Potsdam ores are the conglomerates found between the base of the Potsdam and the Archean. They have been worked for years near the Homestake outcrop and at Rockerville in Pennington County. They are, however, simply placer deposits in which the gold is chiefly free.

Mr. Smith's paper is a very careful account of an important district, and it is impossible to give a fair idea of its contents in a brief summary.

PRECIPITATION OF GOLD BY ZINC-THREAD FROM DILUTE OR FOUL CYANIDE SOLUTIONS.

BY ALFRED JAMES.

This paper gives the result of investigations made at several cyanide plants in the Transvaal, to ascertain the causes of incomplete precipitation of gold from the solution. At some plants the effluent was found after treatment to be too high in bullion contents, and the results were consequently unsatisfactory. The trials made disclosed the fact that more attention to the close packing of the zinc-shavings in the extractor-compartments tended to improve the results, even with the most dilute solutions. The function of the zinc being one of surface, it stands to reason that a compartment well filled with zinc would be more effective than a half-filled one. Moreover, the quality of the zinc was inferior. This should be in long, tough, thin, light threads; light enough to ignite readily, and tough enough not to disintegrate easily into a slime. The coarse shavings too frequently employed appear to give the reverse of the best practice; they are brittle, contain less surface, and take up more room. It is almost impossible to pack a compartment properly with such zinc, which permits the existence of channels through which the solution may ascend without coming into effective contact with the zinc at all.

The boxes which do the best work have compartments the depth of which is greater than any other dimension. But even under the best conditions solutions are encountered which give trouble when run through in the ordinary way. Such solutions are those charged with alumina salts, and those resulting from the treatment of weathered concentrates containing acid iron salts. Very thorough investigation has been carried out on these solutions; and it is found that by simply giving them longer contact with the zinc they may be treated with complete success. With solutions the alkalinity of which has been neutralized by acid salts, it is advisable to add a slight amount of soda; but even in the most difficult case an alkalinity of 0·025%, or ¼ lb. per ton, has been found perfectly effective.

In connection with the precipitation experiments made and described at length in the paper two other points call for especial remark:

1. The amount of alkali added is kept as low as possible, to avoid any great excess beyond the amount required to neutralize the acidity of the ore and for zinc-box reactions.

2. It is well known that the presence of alkali or alkaline carbonates, always present in used solutions, interferes with the silver nitrate test, making the solution appear to be stronger in available cyanide than is really the case. Chemists in charge of works should, therefore, be careful not to be misled by this test, or lowered extractions may result. The effect of caustic potash or soda on double cyanide of zinc and potassium is not to regenerate all the cyanide of potassium as shown by silver test, the test, as suggested by C. J. Ellis, being rendered unreliable by the silver throwing out the zinc from the double cyanide, and the zinc so displaced being dissolved by the KHO present, thus prolonging the titration.

THE MICROSTRUCTURE OF STEEL AND THE CURRENT THEORIES OF HARDENING.

An interesting and important group of papers presented at this meeting were criticisms and discussions on the paper on this subject by Mr. Albert Sauveur, read at the Colorado meeting in September, 1896. These papers are generally of such a nature that it is impossible to present them in abstract, and they can only be briefly outlined.

Prof. A. Ledebur suggests some modifications in the statement of the carbon theory of hardening, and is also inclined to attach less importance to the microscopic study of the metals, believing that the student may be misled unless extreme care is used.

Mr. R. A. Hadfield instances the behavior of iron-nickel and other alloys as evidences against the allotropic theory. He thinks that the position has now been clearly stated, and facts, not theories, are required.

Mr. Ralph G. Scott refers to the experiments of M. Moissan, and thinks that by suddenly cooling heated steel in molten lead, some of the carbon might be preserved in the allotropic condition in which it exists at the quenching temperature.

Prof. H. C. Jenkins is not ready to accept the statement that a diffused carbide is the cause of hardening.

Prof. J. O. Arnold calls attention to the great influence of manganese and silicon on the microstructure of steel, and to the fact that planimeter measurements are only very rough guides to the cubic values of micro-constituents.

Professor Roberts-Austen urges the importance of the allotropic theory, and points to recent experiments on the diffusion of solid metals as affording evidence of complex molecular changes in solids.

Mr. Henry M. Howe presents a carefully stated paper which is a complete piece of argument in itself and cannot be compressed without danger of losing some of its meaning. Generally he supports the allotropic theory.

Mr. F. Osmond sends a paper as carefully prepared and as elaborate as Mr. Howe's. In conclusion he says that "to sum up the question, the allotropists have established, with the useful assistance of their opponents, the existence of two allotropic states of iron and the permanence of these states in certain determined cases. They have given a rational classification of the action of foreign elements connecting the carburized steels to the maganese and nickel-steels, showing that steel above its critical points is a solution, and furnishing in answer to all objections replies which are at least plausible. They see no reason why their ideas should not be reconciled with the dissolved carbide of M. Sauveur, the carbide of iron of Mr. Howe, the double carbides of iron and manganese of Mr. Hadfield and the molecular stresses of M. André le Chatelier. They regret not having drawn a complete picture, needing no finishing touches, of all the observed phenomena in this branch of the metallurgy of iron. But such a work was not easy to execute. It has not been completed sooner probably because the state of science generally still renders it impossible to effect the solution of a problem which is not the direct outcome of one already solved."

MAGNETIC SEPARATION OF NON-MAGNETIC MATERIAL.

BY R. W. RAYMOND.

In discussing the paper on this subject by Messrs. H. A. J. Wilkens and H. B. C. Nitze, read at the Pittsburg meeting, Dr. Raymond says that the allusion in this paper to the gap between the strongly and the weakly paramagnetic substances may be more fully illustrated by a reference to the work of Plücker, whom the authors mention in passing. His paper on the subject is in Poggendorff's *Annalen*, Vol. LXXIV., for 1848. Taking the magnetic attractability of iron as 100,000, he determined that of other substances by careful experiment. The following instances, extracted from a larger number in his paper, will be interesting in this connection: Magnetite, 40.227; red hematite, 134; specular iron ore, 533; hydrated ferric oxide, 156; limonite, 71; dry persulphate of iron, 111; protosulphate (iron vitriol), 98; pyrite, 150; hydrated Mn_2O_3, 70; Mn_3O_4, 167. It is evident that determinations of the magnetic attractability of natural minerals must be affected by their degree of purity, and also by their chemical and physical condition. To meet these points partly, Plücker calculated this function for the amount of iron, manganese, etc., present in the minerals examined, obtaining the following figures: Iron in magnetite, 55,552; iron in red hematite, 191; iron in specular iron ore, 761; iron in hydrated ferric oxide, 296; iron in dry persulphate, 349; iron in protosulphate, 385; iron in pyrite, 321; manganese in hydrated Mn_2O_3, 112; manganese in Mn_3O_4, 232. He found also a great difference between two forms of anhydrous ferric oxide (the second, probably being colloidal), of which one showed a susceptibility of 500, and the other of 286, the figures for the metallic iron in them being respectively 714 and 409.

His results do not agree in all respects with those of Wiedemann, or with the results of experiment by the Wetherill machine. A striking instance of discrepancy is furnished by pyrite and iron vitriol, the former of which Plücker rates at 150 and the latter at 98. Yet Dr. Raymond was able, with the Wetherill machine, to take up practically the whole of a charge of powdered iron vitriol, whereas it has not yet been found possible to effect with that machine any extraction of pyrite. Very possibly some adjustment of quantity and intensity of current, in connection with the machine, may hereafter be found, by which it will be made effective upon a wider range of materials than has been successfully treated so far. Meanwhile, it may be said that at the present stage of this apparatus and its manipulation, the results obtained by it do not exactly agree with any of the laboratory lists of relative attractability heretofore published by scientific investigators. The causes of discrepancy will furnish an interesting field for further inquiry. It is pretty certain, however, that the ultimate range of the apparatus will be confined wholly to paramagnetics, and none of the diamagnetics will be added to that list. Under this latter head Faraday included bismuth, antimony, zinc, cadmium, sodium, mercury, lead, silver, copper, gold, arsenic, uranium, rhodium, iridium and tungsten, while he placed among the paramagnetics iron, nickel, cobalt, manganese, chromium, cerium, titanium, palladium, platinum and osmium. Some of these latter are doubtfully classified. Messrs. Wilkens and Nitze have not clearly succeeded in attracting, thus far, any minerals not containing either iron or manganese. What they may accomplish hereafter among the other paramagnetics will be watched with interest.

THE DISTRIBUTION OF THE PRECIOUS METALS AND IMPURITIES IN COPPER, AND SUGGESTIONS FOR A RATIONAL MODE OF SAMPLING.

BY EDWARD KELLER.

This very interesting paper describes a series of carefully conducted experiments, made to ascertain the distribution of the precious metals in bars or pigs of copper as cast for shipment, and in molten copper. A number of different methods of sampling were tried, and efforts made to secure specimens from every part of the ingot. The results are presented in a number of tables and diagrams, which are compared by the author with the results in the case of lead bullion, referred to in Hofman's *Metallurgy of Lead* and in the paper by Mr. A. Raht in *The Mineral Industry*, Vol. III. With regard to the sampling of copper bars, Mr. Keller concludes that it is almost impossible to obtain by drilling, punching, or clipping, samples of satisfactory accuracy from bars or pigs of the usual forms. He further says that when we take from a molten mass of copper a sample by means of a ladle, the latter must be so hot as not to allow the forming of any solidified metal (sculling), for should this happen, the remaining liquid portion, which is to constitute the sample, would be for one class of copper too high in its contents of precious metals, and for the other class too low. If, however, we pour from a ladle in which the whole metal is liquid, a so-called shot-sample, there is no assignable reason why it should not be a correct sample. When large samples of shot are taken from charges which are supposed not to be homogeneous, they must, of course, be remelted, and a smaller sample taken in the same way, or a sample-plate must be cast, for which the rule described below must be observed; otherwise, the final sample may become erroneous. In most smelting and refining-works sample-bars or cakes are desired, and to produce these in the proper shape should be the duty of the sampler. To eliminate all the difficulties inherent to pigs and bars we only need to reduce one dimension; or, in other words, to cast a plate the thickness of which is small compared to the other two dimensions. Of course, concentration in this plate is governed by the same law as in any other body; it takes place from or toward the center. But the concentration in the horizontal direction, from the sides, can extend no farther than a distance equal to the thickness of the plate, for when the solidification has proceeded that distance horizontally the plate has entirely solidified vertically. We thus have all around this plate a zone not wider than its thickness, where concentration has taken place just as in a bar or block; that is, both horizontally and vertically, and consequently we have one enriched and one impoverished band around the four sides. In the part of the plate enclosed by this zone we have had concentration in the vertical direction only, and the plate here consists, therefore, of what we may term layers of metal of different concentration. If we drill or punch through all of these layers we obtain a correct sample of the whole plate.

This seems to be the simplest solution of the sampling of any metal or bullion. It is difficult to see any reasonable objection to the casting into plates of appropriate size of any such material destined for shipment, of which subsequent sampling is required, and for which the remelting and taking of samples from furnace charges is impracticable. Uncertainty of sampling would thus be eliminated, and if beveled edges were given to the plates the handling of them would not be more difficult than that of bars.

SWEDISH IRON PRODUCTION IN 1896.

We are indebted to Prof. Richard Akerman for the approximate statistics of the production of iron and steel in Sweden during the year 1896. The Swedish blast furnaces, all of which use charcoal as fuel, turned out during the year 488,400 metric tons of pig iron, showing an increase of 33,200 tons as compared with 1895. The quantity of blooms produced from pig iron in charcoal hearths was 185,500 tons, the larger part of which was exported. The steel makers were active during the year, the manufacture of steel continuing to grow, somewhat at the expense of the iron production. There are reported in 1896, 115,300 tons of Bessemer steel ingots and castings, and 135,300 tons of open-hearth ingots and castings, making a total steel production of 250,600 tons. The statement shows that the open-hearth process is increasing more rapidly than the Bessemer.

The exports of bar iron and steel in 1896 reached a total of 180,515 metric tons, showing a gain of 2,429 tons as compared with 1895. The export of iron ores is growing very rapidly, owing to the demand for the British furnaces, and, to a somewhat less extent, for the German furnaces. The ores sent abroad are chiefly from the Gellivara and other deposits in Northern Sweden. The total shipments in 1896 were 1,150,695 metric tons, showing the large increase of 350,243 tons, or over 43%, as compared with the year 1895.

Petroleum in Sumatra.—The Royal Netherlands Petroleum Company has completed a well at Langkat, Sumatra, which exceeds any drilled so far on that island. Its daily production is 4,800 bbls. None of the older wells produced at any time more than 500 barrels. If the production of the new well keep up, it will be able to furnish 3,000,000 cases of refined oil a year.

Xylolith.—Stone-wood or xylolith is produced from sawdust and magnesia by Otto Lehnig, of Potschappel, near Dresden, Germany. The mixture is highly heated and subjected to a pressure of 150 atmospheres. The product can be worked with tools, like hardwood, but it does not burn, nor absorb moisture, nor warp. It is produced in different colors and patterns, in plates of all sizes, and is particularly adapted for use in buildings. It is very hard, and it is claimed will not wear smooth in steps and similar places.

Japanese Alloys.—The following is the composition, according to the *Iron Industry Gazette*, of a number of Japanese alloys, hitherto kept a close secret, and now revealed by workmen engaged in making them: The *Shadko* is an alloy of copper, and from 1 to 10% of gold; the objects are placed in a mordant of sulphate of copper, alum and verdigris, until they have assumed the coppered or blue-black hue of swordsheaths and decorative articles. *Gni-shi-bu-ichi* is a copper alloy, with 30 or 50% of silver of the well-known gray color. *Mokume* is a compound of several alloys. About 30 plates or foils of gold, *shadko* copper, silver and the last-mentioned alloy are soldered together, holes are made, the plate hammered out and put in the mordant. The finest Japanese brass, *Sinchu*, consists of 10 parts copper and 5 of zinc. Bell metals, *Karakane*, are made of 10 parts copper, 4 tin, ½ iron, 1½ zinc, the copper being melted first, and the other metals added in the above order.

The Simplon Tunnel.—The Brandt-Brandau Company, the German firm which obtained the contract for this tunnel, has now begun work on the actual driving of the galleries, the preliminary works being completed. The tunnel will be 19,731 meters (12·26 miles) long and will differ from all the other Alpine tunnels from the fact that two separate galleries or tunnels will be made. The second will be smaller than the main tunnel, but will be so arranged that it can be enlarged to full size whenever a second track is needed. The first or main tunnel will be 5·50 meters wide and 4·70 meters high. The second will be 3·70 meters wide and 3·85 meters in height. The tunnels will be parallel with each other, 17 meters apart, and connection between the two will be made by small transverse galleries 200 meters apart. The second tunnel will for the present serve only for purposes of ventilation, transporting material for repairs and the like. The drills used will be the same as those employed at the Arlberg tunnel, but with certain improvements in machinery it is hoped that the new tunnel will be completed in a little less than six years.

A NEW ZEALAND GOLD MINE.

The Hauraki District in New Zealand is at present attracting a great deal of attention, owing to the large returns obtained from a few of the mines, and to the fact that recent explorations show the persistence of the gold-bearing veins at considerable depths. The district is in the province of Auckland, and covers an area of about 140 by 30 miles; it is divided into the three counties of Coromandel, Thames and Ohinemuri. Gold was discovered in the Kapanga stream in Coromandel as long ago as 1852; the discovery of veins in the Thames dates from about 1867, and from that date the mines have been worked with varying activity. The refractory nature of the ores discouraged mining for a time, but more recently it has been greatly stimulated by the introduction of the various lixiviation or wet processes, with excellent prospects of success.

The country ought to be an attractive one, being mountainous, very picturesque, with an excellent climate and an abundant supply of water. Something of the wild nature of the scenery is shown in the accompanying views, taken from the Australian *Town and Country Journal*, which represent the Crown mine at Karangahake. Fig. 1 shows the entrance to the mine in the Karangahake gorge; Fig. 2 is a view of the mill, which is built on the side of a steep hill; Fig. 3 shows the interior of the cyanide shed. There is an abundant supply of water obtained from a dam a short distance above the mill, which also furnishes the power.

The Crown mine was the first in the district to adopt the cyanide process with success. The method adopted is dry crushing and direct cyaniding, after a preliminary roasting. It is claimed that the dry crushing shows better results with these ores than wet, and that the wear on stamp-shoes and dies is less. The dry process is also used by the Waihi Gold Mining Company in the same district. Dust is avoided as far as possible by a careful system of ventilation with dust-collecting chambers. The battery consists of 40 stamps; it is fed automatically from the bins in which the ore is stored as it comes from the breakers. In front of the battery screens of canvas are placed, and a current of air from a powerful fan drives the dust into a receptacle provided for it.

FIG. 1.—ENTRANCE TO THE MINE.

FIG. 2.—THE MILL.

CROWN MINE, KARANGAHAKE, NEW ZEALAND.

The ore is first dried and receives a slight roasting in kilns, from which it is conveyed to the rock-breakers. Thence it passes into the ore-bins, from which, as noted above, it is automatically fed to the stamps, where it is crushed until all will pass through a 30-mesh screen. The dry, pulverized ore passing the screen falls into a narrow trough and is conveyed by means of a screw conveyor into a dust bin at one end of the battery. From this bin the pulverized material is lifted by a bucket-belt elevator, and discharged upon an 8-in. rubber belt with rope edges, and conveyed to and across the hopper 110 ft. long, running the entire length of the cyanide plant house. This hopper has 20 doors for discharging the sand into trucks, which are then run straight out over the percolating vats into travelers running on rails, which are fitted with hand traversing gearing, enabling a truck to be tipped at any part of the vat.

FIG. 3.—THE CYANIDE VATS.

CROWN MINE, KARANGAHAKE, NEW ZEALAND.

The vats are all circular, 22 ft. in diameter and 4 ft. in depth, of which 5 in. is taken up by the filter bottoms, which consist of a wooden grating with edges rounded off on the upper side, having a strong Hessian cloth spread over as a filter. The vats, formerly made of kauri, are now manufactured from steel plates. The solution of cyanide is about 0·4%, and is introduced into the bottom of the vat under the filter cloth, and forced up through the sand till it stands about 2 in. above it. The present cost is said to be about 13s. ($3 12) a ton. This includes drying, crushing, cyaniding and the recovery of gold from the solution. The average percentage of recovery is not stated.

PRACTICAL NOTES ON FURNACE CONSTRUCTION AND MANAGEMENT.—III.*

Written for the Engineering and Mining Journal by Herbert Lang.

The sketch which is given herewith, Fig. 4, shows a cross-section of one side of a round, water-jacket furnace of the Arizona type. This is an excellent contrivance for heating water, but could be still further improved for that purpose by continuing the jacket down under the crucible and up around the smokestack. This construction does not lend itself to the rectangular forms, in which it is customary to make the jackets in sections, as they would be both too large and too difficult to build. The fire is thoroughly surrounded by water and no heat can get away without doing work of some kind, and by feeding plenty of coke and keeping the fire surface of the jacket clean the output of hot water can be made quite impressive. This reminds me of some passages in ancient history, which I think will be interesting to the reader.

On page 163 of Browne's report on *Mineral Resources* for 1867 (first of the series), there is an account of the so-called "Haskell's water-lined furnace," which, it is said, was coming into use quite extensively in California, where a boom in copper was then under way. Cupolas of this kind had been erected at several localities in the State and seemed by the accounts to be giving good satisfaction. It is described as follows: "The peculiar feature of his invention is a water-lining, which may be described by saying that the cupola consists of two parts, one within the other, like the divisions of an onion. These parts are formed of stout iron boiler plates securely riveted at the joints. Between the two there is a space of about 6 in.; this is kept constantly filled with cold water, by means of a tank above. This cool water saves an immense quantity of heat which would otherwise be lost by radiation, and, as a matter of course, effects a corresponding saving in fuel. . . . A very powerful and even blast is kept up in these furnaces by a large cylinder bellows kept in motion by a small steam engine. . . . These furnaces will be of great benefit to the owners of mines containing large bodies of oxides, carbonates and silicates, which are of too poor quality to ship to market in bulk. They are very cheap and portable, the cupola, blast, engine and boiler, costing only about $3,000, and all combined only weighing about five tons."

The most striking passage in this description of the pioneer water-jacketed furnaces of California shows the erroneous views which were then held, and perhaps are still held by some as to the real functions of the cooling water. The heat which goes into the water is, of course, absolutely lost, with the exception of the small amount which we can recover by using the water to feed the boilers or for similar uses. Attempts have been made and patents taken out for the utilization of the steam which can be generated by confining the water in the jackets under pressure; but for reasons which are obvious to the practical mind these attempts are and must remain failures. The production of steam, depending upon the rate of driving of the furnace, and upon the condition of the inner surface of the stack as to the thickness of the coating which is constantly forming and disappearing, is of too precarious a nature to be useful; and the risks attendant upon carrying steam under pressure in the jacket are such as to put the matter out of the question.

I quote Mr. Browne's account of this interesting matter partly to add point to what I have said about the limitations of the water-jacket and partly to call attention also to an important question of history. I think it probable that the Haskell cupolas were the first ever set up and used in the United States. If this is the case, attention should be called to the work, good of its kind, that those old pioneers did. Some of these Haskell stacks made money for their proprietors, and succeeded in every respect as long as the oxidized ores, which were their dependence, held out. But when they got down to sulphurets they could not make it pay, for the roasting proved too costly, besides which the ores were poorer. Copper mining in California has a very interesting history, indeed, which is worth recounting. I shall say at this time no more than that it divides itself into three eras, the first, beginning in the early sixties, devoted to extracting the rich surface ores and shipping them, or smelting them in small Haskell or brick stacks into rich matte, or oftener into black copper. When the rich ores gave out they set about leaching the sulphides, first roasting them in big heaps. This era has lasted until now, producing an immense amount of cement copper, which has always been good and sells well. Perhaps nowhere in the world has copper leaching been carried to a higher degree of technical success. In this difficult and somewhat obscure department of metallurgy none have done better work than Borger at Campo Seco and Ross at Copperopolis. The third era has dawned of late, when modern methods have begun to be introduced and foreign capital has come to assist in the work. Californians have no use for copper mines and have sold them at a rather poor price.

Returning to the subject at issue, the simplest and most accurate conception that we can have as to a blast furnace is that it is merely a box in which the smelting is kept up. The form of the box is important, but it is with the material of which it is built that we have now to deal. Could a perfect lining material be found the sides of the box would keep all the heat in, while entirely unacted upon chemically by the fusing matter within. The brick walls are imperfect, because they are acted upon to some extent by the melting charge, while they also allow the escape of a portion of heat; not much in comparison with what the water-jacket loses, but still enough to be of some moment. As for the water-jacket, it is perfect as regards its resisting powers against the hot slag and the gases, but its loss of heat is a most important consideration, which may or may not offset its resistance to corrosion, according to the conditions prevailing at the place where it is used. Someone in writing upon this topic lately has said, "The artificially-formed layer of slag and sublimated material which virtually forms the non-conducting lining of the furnace." Now, I know we should never call this a non-conducting lining, for the substances which upon analysis we find gathered there are comparatively active conductors of heat. They are generally composed of sulphides of zinc, lead, etc., and they transmit the heat quite rapidly through their whole thickness, which commonly reaches several inches. They are so much better conductors than firebrick that we must not rely upon their existence for the conservation of our heat. Instead of looking upon this crust as saving fuel, I regard it as a nuisance to be obviated, because it is continually falling away and being renewed.

As may be gathered from what I have already said, my individual preference is for a combination of the two systems, the brick stack and the water-jacket, of which combination the prevailing type of American lead furnace is the best exemplar in common use. This has comparatively low jackets surmounted by the brick upper work extending to the feed floor, but no higher. This furnace is the outgrowth of theory and practice during the most active period which the art of smelting has ever known; it is a very excellent contrivance, which is commonly regarded as perfect; but I believe it is still susceptible of improvement in some points. I would suggest, for example, that the whole construction lacks somewhat in mechanical design. Its different parts do not support each other, and it is weak and lacks coherency. Its outline is not the best that could be achieved. I have attempted its improvement, as shown heretofore, by introducing a strong frame by which the whole structure is supported, and which embraces functions altogether new in this kind of construction. Thus, the frame serves as a wind-box, suited for the transmission of hot as well as cold air, and likewise carries the jackets, which simply line its interior face, which is the only surface which it is necessary to protect from the heat. I am satisfied with the resisting

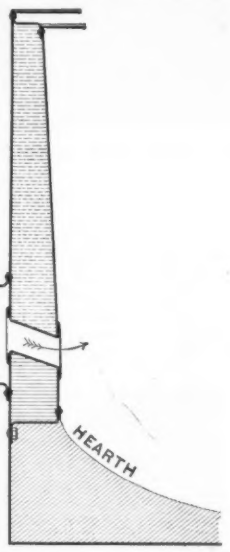


FIG. 4.

powers of the ganister lining which extends from the top of the jackets up to the feed floor, and which, by the peculiar open construction of the top, is so easy of renewal and repair. By these means I get rid of the outstanding air pipes and render the exterior of the structure plain and symmetrical. I think that the tendency of late has been to complicate the blast furnace unnecessarily, loading it down with new devices for controlling the blast, while the questions of supporting the furnace floor above and taking away the smoke have not received the attention that their importance merits. There is no good reason why the floor above cannot be made a part of the furnace structure itself and be supported therefrom instead of appending it in part from the neighboring posts and in part resting it upon the upper edges of the stack; and I have accordingly provided for it by carrying up the stout iron inclosing plates and turning them outward at the top to form the spacious floor which I insist on in every case.

It is evident that what is really needed for cooling the inside walls of our furnaces is not the elaborate and complicated apparatus generally affected, but the simpler and cheaper means of hidden pipes, etc. If jackets must be used they should be reduced to their lowest terms, covering those spots only which are in actual danger of being destroyed. There is no sense in protecting a surface which, like brickwork above the fusion zone, can protect itself. Nor is there any need of water-cooling surfaces, which can be easily renewed, such as the accessible parts of the interior, which we can restore with ganister while the furnace is still running. Believing this to be the case, I can see no merit in those contrivances for surrounding the fusion zone with extensively jacketed surfaces, which impose greater duties upon the fuel and prevent that economy of consumption which should be the aim of the designer. Still less can I see merit in those extravagant structures composed of steel or iron jackets, two and even three stories high, which the ingenuity of late engineers has made us acquainted with. As an inconvenience incidental to these high iron linings it is known that the soluble sulphate of copper salts which exist in some ores react upon the iron, corroding it injuriously in a short time at the points least exposed above the heated regions, so much so that copper plates have been substituted for those of iron or steel. Unless there is something peculiar in the local conditions which makes it impossible to do otherwise than make the expensive

* No. I. of this series appeared in the *Engineering and Mining Journal* for January 23d, 1897, page 89; No. II. in the number for February 6th, 1897, page 137.

change from steel to copper, would it not, I would ask, be a perfectly simple and advisable matter to substitute a few firebrick instead?

The question of the cost of different designs of furnaces enters somewhat into the matter of their feasibility, but not as a rule decisively. The bare cost of a furnace cuts little figure in the aggregate outlay for a smelting plant. In works with whose designing I have been concerned the blast furnaces form from about 8 to 20% of the total cost of the plant; and there have been many works erected in this country where the proportionate cost of the blast furnaces was much less, being as low as 10 or even 5% of the total. In one establishment on the Pacific coast where the entire plant cost in the neighborhood of $200,000, the two blast furnaces cost about $4,000 together, or 2% of the whole.

This is suggested by the question which is so persistently asked, "What will a furnace of such or such a capacity cost?"—the query coming from people who meditate smelting their ores, but who have not yet got far enough into the subject to find that the cost of the furnace usually cuts a small figure in the aggregate. The real point to be considered is not the cost but the adaptability of the furnace (or other metallurgical device) to the work to be performed. If we can secure that, all other considerations take a secondary place. While we can sometimes effect a saving in the first cost of a furnace, it should never be done at the expense of efficiency of plant. With some—I had almost said most—persons, a smelter is a smelter; and there is no use in talking to them about the desirability of this and that design or the possibility of simpler and cheaper erections and more advantageous disposition of plant. Their suspicions are aroused at the bare suggestion of innovations on established usage, and all we can do for them is to produce the old hackneyed plans. But for the really appreciative patron who happens to be hampered pecuniarily there is a great deal which can be suggested in the way of cheapening, not the furnaces alone, the cost of which is a small matter, but the general design and disposition of the plant, in which very notable economies may be made. As to the blast furnace, its construction is a matter so simple that one can build a very good and durable cupola at very small cost. If I were building for my own use I could rig up a satisfactory enough stack with a lot of old rails for binders and some second-hand gas pipes and some crushed quartz. With these and a few castings for the spouts one could erect as good and efficient a blast furnace as was ever put up. Run properly, such a construction would answer every purpose fully as well, and in some respects better than the costly and complicated stacks of to-day. But it is often safer and better to humor prejudice rather than to attempt by the introduction of novelties to save the small difference in cost.

Minor but still important alterations in the ordinary course of procedure are slowly taking place, not in smelting alone, but in all modes of ore reduction. If the present smelting plants of the United States were swept away they could be replaced with better ones at one-fourth the original cost, and they would then be able to do their work at least one-fourth cheaper in consequence of the improvements which they would embody. Indeed, I believe it would pay to tear them all down and rebuild, at least once in every five years, which is a long time in the life of a smelter.

Conventional ideas have very largely prevailed in matters of this kind, and builders of new plants usually act upon the belief that what has been found good enough for one place is the right thing for another; or, to state it a little differently, the desire has always been to produce as nearly as possible the plant and apparatus which are in use at some well-known works. There is not enough intelligent study of the conditions, but reliance on trite notions and hackneyed ideas.

The worst feature is that people fall into the error of thinking, for example, that a smelter is a smelter, and giving no thought to the difference of conditions prevailing in different localities. People try perpetually to make the conditions fit the machinery instead of the machinery fitting the conditions, which latter is the end and aim of every intelligent designer. It would be very hard to convince the average mining investor that he can save half the cost of construction and a third of the cost of running, which might sometimes be done by taking heed of the present condition of metallurgy instead of aimlessly copying the work of others.

I have given considerable attention to the designs of works, especially those of small or moderate capacity, during some years past, and although I do not profess that there is anything of startling novelty or of revolutionizing tendency in the plans that I have built upon, I think that they may repay the study of those who are engaged in the same lines, and I will therefore take the opportunity to call attention to them later. I think they set forth some feasible ways for the saving of money in construction as well as in the subsequent running of the plants. Probably all engineers will agree that it is not necessary to go outside of ordinary and accepted methods in order to accomplish a considerable saving in these directions.

[We hope metallurgists will discuss Mr. Lang's notes that the greatest possible amount of experience may be drawn out.—ED. E. & M. J.]

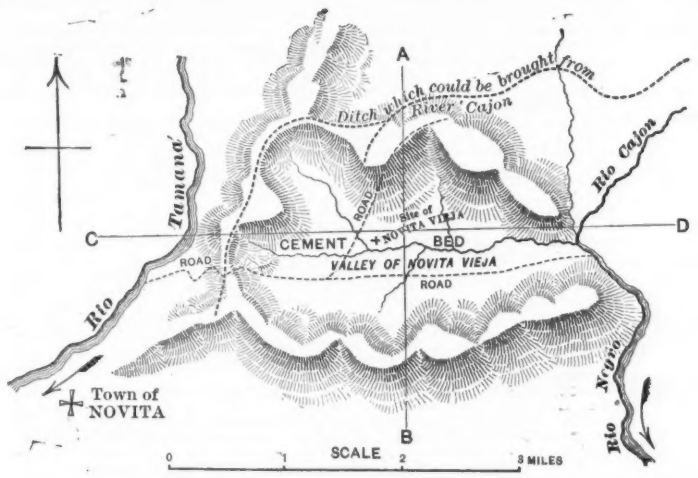
GOLD AND PLATINUM AT NOVITA VIEJA, COLOMBIA.

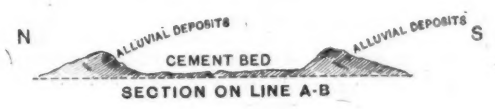
Written for the Engineering and Mining Journal by Robert B. White.

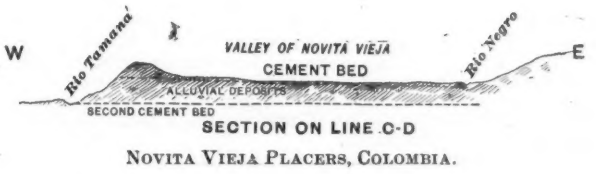
The site of the old City of Novita Vieja is distant about a mile from the River Tamana, one of the principal tributaries of the River San Juan, which falls into the Pacific Ocean a few miles north of the Bay of Buenaventura. The mine of Novita Vieja consists of a bed of cement or conglomerate, which has been laid bare by old alluvial workings over a length of two miles or more, and a width of one-half a mile. Above the cement there existed beds of gold-bearing gravels, sands and clays, which were washed off by ground sluicing in the time of the Spaniards, and as these old workers had no means of treating the cement they left it as bed rock.

The cement bed is from 6 to 12 ft. thick and must measure on the area above given at least 5,500,000 cu. yds. It forms the flat bottom of a valley with a fall of 2%, which joins the valley of the River Cajon or River Negro. Over its whole extent the cement may be prospected anywhere, and its yield in gold and platinum may be calculated to almost a certainty. In 1878 the writer made a series of prospects, which, weighed and calculated, showed a produce on the average of 1 oz. per ton, of which half was gold and half platinum.

The River Cajon affords abundant water-power for any machinery, and the cost of excavating, transporting and crushing the cement could not exceed $3 per ton. No top dirt would have to be removed and all the material excavated would go to the stamps. The tram roads for conveying the cement to the stamps would have an easy down grade, and they may be laid on wooden sleepers if preferred, as good timber is abundant in the surrounding forests. There is naturally no vegetation to speak of on the cement bed, so that no clearing has to be done. Assuming that stamps capable of reducing 50 tons per day were erected, a produce of 25 oz. gold and 25 oz. platinum would be obtained daily. A year's result may be calculated thus, on 300 working days: 15,000 tons of rock milled, producing 7,500 oz. gold and 7,500 oz. platinum. The working cost need not be over $3 per ton.







NOVITA VIEJA PLACERS, COLOMBIA.

The machinery, stores, etc., could be placed on the mine at a very moderate cost. A steamer makes the trip from the port of Buenaventura and up the River San Juan to within 15 miles of Novita, and this last 15 miles is navigated by large canoes. From the river bank to the site of the works the ground is easy. It would be a convenience if plantains, maize, beans, etc., were cultivated for the supply of the establishment, and this would require only a small outlay.

The undertaking need not be limited to the working of the cement bed. An immense extent of gold-bearing gravel exists, as shown in the accompanying sketch map and sections, and this might be worked by hydraulicking with water brought from the Rio Cajon. Two outfalls would be available, one to the river Tamana and the other to the river.

An hydraulic or alluvial claim in Colombia covers 5 sq. km., and any number of claims may be taken up.

The complete title to each claim costs about $200, Colombian currency, and is held by an annual payment of $5.

Gold in Formosa.—According to the *Japan Mail*, Mr. Miyamo, Chief of the Civil Administration Bureau of Formosa, in a speech delivered before the Tokio Commercial and Industrial Society, just previous to his leaving for the island, spoke on the vast natural resources of Formosa, and how they might be developed. The gold industry promised to be very lucrative in the near future. Only about 10 years ago the present alluvial gold-fields were discovered by a Chinaman who had been employed in his early years in placer mining in California, yet more than 3,000 laborers were now engaged collecting gold on the upper reaches of the Tamsui. By reference to the Chinese customs returns the speaker found that over 700,000 taels of gold-dust has been exported to Hongkong and Shanghai. But that did not represent anything like the real output, as large quantities were smuggled from the island. When suitable machinery has been erected on the gold-fields and proper supervision prevails, the output of Formosan gold might be expected to greatly increase in volume. Every industry in Formosa is still in an undeveloped stage.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

ACQUISITION OF MINING CLAIM.—A co-owner of several mining claims, who undertakes to do the work necessary to hold the claims, and reports to his co-owners that he has done such work, cannot acquire any interest in such claims as against them, because of the failure to do such work.—Royston vs. Millet (76 Federal Reporter, 50); United States Circuit Court.

HOW VALUE OF MINING STOCK MAY BE SHOWN.—The value of the stock of a mining corporation at a particular time may be established by the testimony of brokers, showing the prices at which actual sales of such stock were made in open market at such time.—Continental Divide Mining Investment Company vs. Bliley (46 Pacific Reporter, 633); Supreme Court of Colorado.

CONTRACT OF GUARANTY ON COAL SHIPMENTS.—A guaranty of "payment of all bills for coal shipped" to a certain person "to the amount of 1,500 per month," with further provision that "the undertaking . . . is that at no time shall there be standing more than three months' shipment of coal," is not limited to shipments for three months, but merely to an amount not exceeding at any time $4,500.—Shipman vs. Kelley (41 New York Reporter, 328); Supreme Court of New York.

LIEN BY BANK FOR ADVANCES.—A coal company, in consideration for advances for its pay roll, agreed that all its accounts for coal should be assigned to the bank. At the request of the bank, it was agreed that the accounts for coal should be put under the control of the bookkeeper of the coal company, who should pay the money to the bank when collected. The court held that the bank thus acquired a lien on the accounts, entitling it to the amount collected on same in the hands of a Receiver of the coal company.—Atlantic Trust Company vs. Carbondale Coal Company (Northwestern Reporter, 697); Supreme Court of Iowa.

INSUFFICIENT DESCRIPTION OF MINING CLAIM.—A description in the record of a mining claim was that the claim was "situated on the north side of N. W. Creek, about one-half mile from the H. mines, the direction being southwest; the G. W. claim on the north, and the K. claim on the south, and the G. on the east." The H. mines were situated so that several mines might be located within half a mile in the southwesterly direction all of which would be north of the N. W. Creek. Held by the court that the description was insufficient, under the laws of the United States, requiring a description by such reference to some natural object or permanent monument as would identify the claim.—Brown vs. Levan (46 Pacific Reporter, 661); Supreme Court of Idaho.

RIGHT TO DEDUCT COMMISSION ON COAL.—A coal mining lease provided as royalty 25c. per ton when the coal sold at a certain amount or less "at the breaker." By universal usage the meaning of "selling price at the breaker" was the actual selling price at the place of delivery less the cost of selling and the freight. The lessee made a contract for a term of years with an agent to sell his coal on the usual commission. The court held that the lessee, having himself sold all his coal to one party, for a year covered by the agent's contract, thus securing a better price, was entitled, in determining the selling price for purposes of royalty, to deduct the part of the agent's commission which he still demanded.—Shoemaker vs. Mt. Lookout Coal Company (35 Atlantic Reporter, 731); Supreme Court of Pennsylvania.

Russian Manganese Ore Exports.—The total shipments of manganese ore from the Caucasus for the nine months ending September 30th, 1896, were 138,920 metric tons, of which 2,206 tons were sent from Batum and 136,714 tons from Poti.

Life of Steel Rails.—In the annual report issued by the Railway Department of Ceylon, the question of the life of rails has been investigated in a practical way. The assumption of 30 years as the length of life of steel rails on the Ceylon railways is shown, says *Indian Engineering*, to be erroneous if applied without qualifications; the needful qualification being that the line should be straight or with very flat curves, but when there are gradients and curves of short radius, the life of a steel rail is considerably shortened, and this is particularly the case with the outer of the two lines on the curves. From a number of examples it has been found that the life of the outer line on sharp curves may be roughly estimated at "one year for each chain of curvature in the sharper curves."

PATENTS RELATING TO MINING AND METALLURGY.

United States.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

WEEK ENDING FEBRUARY 2D, 1897.

576,108. CARBURETER. Thomas N. Gibson, Argentine, Kan. The combination of a suitable tank, a partition dividing the same into a lower and an upper chamber, which communicate, a mixing chamber within the lower chamber, an evaporator arranged to receive the discharge from the mixing chamber, and an arrangement for spraying oil into the chamber.

576,118. MEANS FOR EXTRACTING GOLD AND SILVER FROM SEA-WATER. William F. Heathman, Santa Ana, Cal. Assignor of forty-nine one-hundredths to Zephaniah B. West, same place. A tank arranged in position to be filled on the inflow of a tide and having an inwardly-opening valve or gate adapted to close on the reflux of the tide, the tank being provided at its bottom with openings and a carbonaceous filtering medium.

576,170. APPARATUS FOR MANUFACTURING GAS. John L. Stewart, San Francisco, Cal. Assignor to Thomas A. McIntyre, New York, N. Y. A closed cupola gas-generator having a gas-escape pipe and constructed with a vertical series of connecting coking-chambers.

76,173. PROCESS OF PRECIPITATING PRECIOUS METALS FROM THEIR SOLUTIONS. Henry L. Sulman, London, England. The process consists in combining and intimately mixing with granulated or powdered zinc an ammoniacal substance.

576,233. CAR-COUPLING FOR MINE CARS. Ballard R. Smith, Rush Run, W. Va. The combination of a link and a hook, draw-bars having eyes by which the hook and link are connected thereto and a bearing-surface between the eyes.

576,264. PROCESS OF MAKING CYANIDES. James D. Gilmour, Glasgow, Scotland The process consists in passing carbon dioxide and atmospheric nitrogen through a solution of a cyanide, forming hydrocyanic acid and a carbonate of the base of the cyanide.

576,323. METALLURGICAL FURNACE. William S. McKenna, Pittsburg, Pa. Assignor of one-half to Joseph W. Kefter, same place. A furnace having a pair-heating chamber and a sheet-heating chamber, a fire-chamber intermediate of these chambers, both communicating with a common chimney.

576,364. AIR-COMPRESSING DEVICE. William U. Griffiths and Henry Niedermayer, Philadelphia, Pa. The combination, with the tank with a water-inlet, valved water-outlet, an air-inlet valve and a compressed-air outlet of float; actuated opening and retaining mechanism connected with the water-outlet valve.

576,386. ACETYLENE-GAS GENERATOR. Emile P. Voisard, Chicago, Ill. The combination with a gasometer water-tank and gas-holder, a removable generator placed above the gas-holder adapted to receive and hold carbide of calcium, gas-pipes communicating with the generator, a water-supply tank, a calcium-residue receptacle, means for introducing water from the water-supply tank into the calcium-residue receptacle, and means for introducing water from the calcium-residue receptacle into the generator in contact with the carbide of calcium.

576,499. GAS APPARATUS. George F. Ransom, Milwaukee, Wis. Assignor by direct and mesne assignments of three-fourths to George F. Ransom, Jr., same place, and Lucas D. Dorschel, Chilton, Wis. An apparatus comprising a tank for gasolene, a pump for this liquid, and at least one generator in circuit with the tank, an air-pump that discharges into the generator.

576,519. CRUSHER FOR STONE, ORE, ETC. George Lowry, Tiffin, O. Crusher of the gyratory or revolving ring type.

WEEK ENDING FEBRUARY 9TH, 1897.

576,529. APPARATUS FOR MANUFACTURING GAS. Walter R. Addicks, Brookline, Mass. The combination of a generator in which one of the chemicals is placed, a supply for a liquid constituting another chemical which combines with the chemical in the generator to form the gas, and a regulator.

576,535. FIXING WORKING POINTS OR ENDS OF PICKS, ETC. John Barlow, Nottingham, England. A pick with a point adjustable by a rod and nut, so that the point can be replaced.

576,545. APPARATUS FOR ELECTRICALLY HEATING METAL. George D. Burton, Mass. The combination of a vessel for containing an electrolytic solution, a hearth composed of two members for supporting a metal to be heated, one of the members being movable relatively to the other.

576,580. APPARATUS FOR EXTRACTING GOLD. William H. Hyatt, London, England. The combination of a sinuous passage in a vertical plane, and of substantially the same area throughout, mercury placed in but not blocking the lower bends of the passage, means for causing a blast of air to traverse the passage, and means for introducing gold-bearing material into the passage.

576,618. ORE-CONCENTRATOR. Albion M. Rouse, Denver, Colo. Assignor to the Miners' Relief Association, same place. The combination of a pan mounted in a movable frame, means for vibrating the pan in the direction of its length, a discharge-valve at one end of the pan and a V-shaped plate located at the valve end of the pan and having openings.

576,619. ORE-STAMP. Albion M. Rouse, Denver, Colo. Assignor to the Miners' Relief Association, same place. The combination of a mortar having side flanges secured to upright posts and having front and rear walls, a bent splash-plate hooked over the rear wall and held in place by a weight and a stamp working within the mortar.

576,660. ROCK-DRILL. Frederick Cramer and William F. Cramer, Denver, Colo. The combination with a stationary frame, a sliding carriage and a drill-supporting carriage adapted to be reciprocated in the sliding carriage, of an octagonal drill-bar rotatively secured to the reciprocating carriage.

576,667. SKIP FOR MINE SHAFTS. William A. Gibson and Casabianca B. White, Cripple Creek, Colo. A skip or cage having cross bars or rails, the upper edges of which are curved inwardly lengthwise and a movable truck or car mounted on the rails.

576,670. PRODUCTION OF BASIC CARBONATE OF LEAD. Oswald Hamilton, Northfleet, England. The process consists in dissolving litharge or oxide of lead in a solution of lead and ammonium acetates in equivalent molecular proportions to form a mixture of tribasic-lead acetate and ammonio-lead acetate, and then subjecting the solution to the action of carbonic-acid gas in order to precipitate basic carbonate of lead.

576,739. MACHINERY FOR MANUFACTURING METAL TUBES. Arthur Pilkington, Birmingham, England. The combination, with a pair of working rolls arranged with their axes crossing a plane drawn through the axis of the work, and rigid supports for the rolls; of driving devices operating positively to revolve the rolls, a rest-roll arranged with its axis substantially parallel with the axis of the work, and springs pressing the rest-roll toward the work.

576,801. PROCESS OF AND APPARATUS FOR MANUFACTURING GAS. Francis G. Bates, Philadelphia, Pa. The process consists in superheating steam passing the superheated steam into contact with a liquid hydrocarbon whereby it vaporizes the latter, and passing the superheated steam and hydrocarbon vapors through a producer-chamber wherein an elevated temperature is maintained by the combustion of carbonaceous matter.

576,822. METAL TUBE ROLLING MACHINE. Arthur Pilkington, Birmingham, England. The combination, with three roll shafts arranged in spiral form about and inclined with respect to the axis of the work, each shaft being provided with a similar series of disks increasing step by step in diameter; of a frame provided with rigid bearings for the two lower roll-shafts and openings arranged between the shafts for the entrance and exit of the work.

576,826. GENERATOR FOR MAKING ACETYLENE GAS. Henry C. Sergeant, Westfield, N. J. A gas retort having a longitudinal depression in its top, in combination with water-supply pipes entering the retort in the depressed portion, a gas-outlet pipe communicating with the retort at one of the highest points of the top wall, and a water chamber or jacket inclosing the retort and condenser-coil.

576,827. ACETYLENE GAS HOLDER. Henry C. Sergeant, Westfield, N. J. The combination of a liquid-containing well or tank, with the bell supported therein and provided with relief passages which communicate between the inside of the bell at points just above its lower edge and the outside of the bell at points above the inside communication.

576,838. APPARATUS FOR REMOVING IMPURITIES FROM SMOKE. Edward E. Dulier, Mildenhall, England. The combination with a flue or chimney having an enlarged chamber of a cup and spraying nozzle.

576,857. ART OF EXCAVATING MINERAL-BEARING EARTHS. George W. King, Marion, O. The combination of an excavator with a pump and sluice boxes.

576,893. ACETYLENE-GAS GENERATOR. Delbert J. Reynolds, Winnebago City, Minn. Assignor to the Finkler-Reynolds Company, Chicago, Ill. In combination, an expansible gas-holder, a gas-generator associated therewith and the necessary connections.

576,955. METHOD OF AND APPARATUS FOR GENERATING GAS. James A. Deuther, Boston, Mass. Patented in England, September 17, 1896, No. 20,599. The process consists in first forming the carbide into compact bodies, each containing a determined amount of carbide and capable of generating a determined amount of gas; and, second, in so storing such compact bodies with reference to a generator as to keep them out of contact with the liquid therein; and, third, in feeding such bodies to the liquid of the generator by mechanism operated by the volume of the gas in such manner that each feed of the carbide shall generate a determined amount of gas.

PERSONAL.

MR. DAVID J. LLOYD, of Litchfield, Ill., has been appointed superintendent of the Trenton Coal Company's mine at Trenton, Ill.

MESSRS. J. H. SHEPHERD and J. E. CHESTER, of the Idaho Springs, Colo., mines are in the South on a trip in behalf of Eastern people.

MR. IRA MEYERS has been elected manager of the Moulton Mining Company's property, at Neihart, Mont., vice E. G. Maclay, deceased.

MR. WILLIAM E. COREY has been appointed general superintendent of the Homestead Steel Works, to succeed Mr. CHARLES M. SCHWAB.

MR. ARTHUR H. TAYLOR, vice-president of the Jualin Mining Company of Alaska, has left that country for his home in Petersburg, Ind.

MR. W. H. WILOUR, a student of Chas. W. Mead, of Virginia City, has taken a position as assayer with the Garnett Gold Mining Company, near Pony, Madison County, Mont.

MR. JOHN HOATSON, mining engineer, of Butte, Mont., has gone to Coloma, Cal., to accept a position at the Mammoth mine, owned by the Butte & Boston Cosolidated Mining Company.

MR. R. G. HUSTON will this week take charge of the Ternan Mining Company, at Elk City, Idaho. This company was recently organized to work a large tract of placer ground in that vicinity.

MR. E. P. JENNINGS, a well-known mining expert, has gone to Idaho, where he will make an examination of mining property in the interest of Eastern capitalists of whom he is the representative.

MR. MONTROSE BARNARD, of Scranton, Pa., chief engineer of the Hillside Coal and Iron Company, has been appointed chief engineer of the Blossburg Coal Company, with headquarters at Arnot, Tioga County.

MR. GEORGE A. SONNEMANN, mining engineer, has resigned his position as superintendent of the Bunker Hill and Sullivan mines at Wardner, Idaho, and will hereafter make Spokane, Wash., his headquarters.

MR. ASA P. BOVIER, a civil engineer, of Elmira, N. Y., has been appointed general manager of the mines owned and operated by the Imperial Mining Company, which are located on Bald Mountain, near Sheridan, Wyo.

MR. THOS. S. LEWIS, inside foreman for Leisenring & Company, at Oak Hill colliery, Minersville, Pa., has become superintendent of the gold mine of the Southern States Exploring and Financial Syndicate, Ltd., of Villa Rica, Ga.

MR. GEORGE DALLAS B. TURNER, the well-known mining engineer, who has been examining Slocan Lake properties, has gone to Glasgow, Scotland. He expects during his absence to enlist the aid of considerable capital for development.

MR. J. G. A. LEISHMAN has resigned the presidency of the Carnegie Steel Company, to take effect April 1st. MR. CHARLES M. SCHWAB has been appointed president, MR. A. R. PEACOCK first vice-president, and MR. C. PHIPPS second vice-president and treasurer.

MR. W. H. WILEY has returned to Idaho Springs, Colo., from a four-months' trip to Korea, in the northern part of which he examined the lode and placer fields for New York and London people who have secured mining concessions from the King of Korea.

IT is reported that the Quincy Mining Company has in view the erection of a smelting plant to do its own work when the contract with The Lake Superior Smelting Company expires. It is not yet known who is to be the superintendent of the new works. The position would be a desirable one for a practical man who understands smelting the native copper of Lake Superior.

MR. JAMES W. ABBOTT, mining engineer, of Yreka, Siskiyou County, Cal., passed through New York this week on his way to the meeting of the American Institute of Mining Engineers at Chicago. Mr. Abbott lived for many years at Ouray, Colo., where he was connected with the District Court. About two years ago he turned his attention to the mining industry, and received his first appointment with the Ybarra Gold Mining Company at Calmalli, Mexico.

OBITUARY.

M. OHARE, a Japanese mining engineer, who was for some time engaged with the firm of Frijita & Company, died December 21st from disease contracted while visiting mines for the company. His death was unexpected, after a short illness. He was much esteemed for his ability, and his loss is much regretted.

DAVID KIRKALDY, who died in London, Eng., on January 25th, was well known to the engineering and architectural professions, as well as to naval architects, as a leading authority on the subject of ascertaining the strength and properties of constructive materials. He was born in Dundee in 1820. His engineering career commenced in 1843 at the engine works of Robert Napier, Glasgow, where he was apprenticed. In time he became chief draughtsman. In 1858 Mr. Kirkaldy first began testing materials. He also turned his attention to the oil-hardening of steel, and was the first to patent a process for this purpose in 1859. He left the firm of Napier in 1861. After several years' study he perfected the design of a testing machine, which covers an area about 54 ft. by 26 ft., and the four main screws measure each 36 ft. in length and are 5¾ in. in diameter. In January, 1874, Mr. Kirkaldy took new premises in Southwark street, in which he established a museum containing specimens showing the results of all kinds of tests of every variety of material.

SOCIETIES AND TECHNICAL SCHOOLS.

SOCIETY OF CHEMICAL INDUSTRY.—At a meeting of the New York section on February 19th a paper was read by Mr. H. S. Blackmore on "Aluminum Binary Compounds and Their Reduction, Including Synopsis of Metallurgy of Sodium, as Considered from Chemical and Electrical Standpoints."

ENGINEERS' CLUB OF PHILADELPHIA.—A business meeting will be held on Saturday, February 20th, at 8 o'clock, p. m., at 1122 Girard street. A paper on "Steel as Viewed by the Engineer," will be read by P. Kreuzpointner, and one on "The Future Habitation of the Club," by Joseph T. Richards, president of the club.

FRANKLIN INSTITUTE, PHILADELPHIA.—A meeting of the chemical section was held February 16th, at which Dr. H. W. Wiley, Chief Chemist of the Department of Agriculture, lectured on "The Soil Microbes Useful in Agriculture." At the meeting of the Institute on February 17th, Mr. Thomas Corscaden described and exhibited the "All Wrought-Steel Belt Pulley," of his invention, as made by the American Pulley Company, of Philadelphia. Mr. John Carbutt made an experimental demonstration of the operative methods of photography with the X-rays. The action of the fluoroscope was shown and described, and some of the results obtained by Prof. Edward E. Barnard, of the Yerkes Observatory, in photographing invisible celestial objects, were exhibited.

ENGINEERS' CLUB OF ST. LOUIS, MO.—The 448th meeting was held February 3d, 1897, at 1600 Lucas place. Mr. J. A. Ockerson, as chairman of a special committee, reported that a memorial regarding the improvement of the Delta of the Mississippi River had been prepared and sent to the various engineering societies and members of Congress from St. Louis. The president reported that he had received favorable replies from several of the engineering societies and from Congressman Cobb and Bartholdt. Prof. F. E. Nipher addressed the club on "The Frictional Effect of Trains of Cars on the Air." The instruments and methods used in measuring pressures in the neighborhood of moving trains were described. A diagram containing the results of a large number of tests was shown and the nature and equation of the curve deduced. The value of the constants computed from the equation of the curve and those computed from the observations checked closely. Improved instruments for making these tests were shown and future work in this direction outlined. The address was illustrated by apparatus and diagrams.

INDUSTRIAL NOTES.

The Newport (Ky.) rolling mill resumed operations on February 15th, giving employment to 400 men.

The Buena Vista, Va., furnace, according to rumors, will be lighted soon. They are now getting in a stock of ore.

The Illinois Steel Company, at South Chicago, started all the mills at full blast last week for the first time in many months. Nearly 3,000 men returned to work.

The Tudor Iron Works, at East St. Louis, Mo. started up on February 15th, with a force of 500 hands. About 250 more men were given employment during the week.

Messrs. Thomas Carlin's Sons, of Allegheny, Pa., have dismantled the open-hearth steel department of the Roane Iron Works, at Chattanooga, Tenn. The Bessemer department will also be dismantled shortly.

The Eleanor Iron Company of Hollidaysburg, Pa., and its striking employees have agreed to a settlement of their differences, and the works resumed operations February 15th, after several months' shut down. The puddlers have accepted a wage scale of $2.75 per ton.

Hatfield, Baird & Company, of Philadelphia, recently purchased the Stony Creek Rolling Mill, at Norristown, Pa., and are dismantling it. The mill was built in 1849 and rebuilt in 1879 and 1887. It contained six double puddling furnaces, three heating furnaces, and three trains of rolls.

The Philadelphia Engineering Works, Limited, are about to ship overland to San Francisco, and thence to Japan, a steel plate smokestack 175 ft. high and 7 ft. 3 in. in diameter in the clear, weighing more than 90,000 lbs. The stack is to be used in a new electric light plant at Yokohama.

The Denison Rolling Mill, at Denison, Tex., which was built in 1891 and put in operation in January, 1892, is being dismantled and the machinery is for sale. The plant was equipped with one Siemens heating furnace and two trains of 3-high rolls (one 9-in. and one 16-in.). It produced merchant iron and cotton ties.

Morris Tasker & Co., of Philadelphia, are building a pipe mill at Mavropol, Russia. It is stated that this mill will be a large and complete one. The same firm has made large shipments of trolley cars and poles to Cape Town, South Africa. They were also the pioneer introducers of trolley poles at Alexandria and Cairo, Egypt.

The Carnegie Steel Company's furnace "O," at Braddock, Pa., was lighted February 10th, having been out of blast since last April. It will furnish employment for 200 men. Eight of the nine furnaces composing the plant are now making iron, giving employment to about 1,800 men, including those who work in the yards.

The Laurel Iron Works, at Laurel, Chester County, Pa., have been dismantled. The works were built in 1825, and contained one annealing furnace, three heating furnaces, and two trains of rolls. They were operated by steam and water power and produced flue and tube iron. They have not been in operation for a number of years.

The Pennsylvania Steel Company at its works at Steelton, Pa., on February 14th posted a notice of 10% reduction in wages to take effect on March 1st. The reduction affects about 3,000 employees. President E. C. Felton said the company was compelled to make it in order to meet the fall in the price of rails, brought about by the collapse of the steel rail pool.

The Franklin Steel Casting Company, of Franklin, Pa., recently held the annual meeting, at which the board of directors elected the following officers: Chas. W. Mackey, president; James W. Rowland, first vice-president; W. J. Welsh, second vice-president; W. J. Bleakley, treasurer; Robert McCalmont, secretary; and W. B. Corinth, general superintendent.

The E. P. Allis Company is completing two large compound vertical beam-blowing engines for export to the Krainische Industrie Gesellschaft, of Triest, Austria. The E. P. Allis Company has furnished some 12 engines, duplicates of these, to the Carnegie Steel Company for their furnaces at Duquesne, Pa. The company has also received advices of the completion of a complete concentrating (gold and silver) plant, which was furnished for Jorge Basadre, Tacna, Chile, South America. All the machinery had to be transported by mule back, and consequently had to be made in sections not weighing over 150 lbs.

TRADE CATALOGUES.

The Phosphor-Bronze Smelting Company, Limited, of Philadelphia, Pa., sole manufacturers of Delta metal in the United States, has published a neat little catalogue illustrating the uses and explaining the merits of this composition metal. It is an alloy of copper, combined with other metals in such a manner as to insure perfect regularity of composition and freedom from segregation, the resultant alloy showing great strength, toughness, rigidity and elastic resistance, combined with the desirable property of working hot. Delta metal is especially adapted for casting large pieces, such as propellers, gears, plungers, etc.; it can be forged or stamped with great facility, and its qualities can be so regulated as to secure the strength of mild steel or the toughness of wrought iron.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the *Engineering and Mining Journal* of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufactures in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the *Engineering and Mining Journal* are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

OIL EXPORTS.—The Bureau of Statistics reports the exports of mineral oils from the United States in January, 1897, as follows: Crude, 8,594,840 gals.; naphthas, 260,372 gals.; illuminating, 47,623,153 gals.; lubricating and paraffin, 4,527,113 gals.; residuum, 588 gals.; total, 61,006,366, which compares with 77,686,921 gals. in the same month in 1896. For the seven months ending January, 1897, the exports of mineral oils amounted to 563,203,814 gals., against 528,453,772 gals. in 1896, an increase of about 9·4%.

OIL PRODUCTION AND NEW WELLS.—According to the monthly statement in the Oil City *Derrick*, the number of new wells completed in the New York, Pennsylvania and West Virginia field in January was 544, having a daily output of 8,790 bbls.; the number of wells drilling was 790. In the Buckeye, Ohio, field there were 252 new wells completed in January, with a daily production of 4,710

bbls., and 311 wells under the drill at the end of the month. For the same period the Southeastern, Ohio, field shows 55 new wells completed with a daily capacity of 499 bbls.; the wells under the drill, on February 1st, amounted to 44. The Indiana field shows that there were 41 new wells completed in January, having a daily output of 730, while 67 new wells were under the drill at the end of the month.

ALASKA.

BOSTON ALASKA GOLD MINING COMPANY.—A Boston syndicate has just come into possession of 40 mining claims, a 10-stamp mill and water rights at Funter Bay, purchasing the same through G. W. Garside and paying $400,000. The company has been organized under the above name. The ore assays from $8 to $40 in gold, and enough is said to be blocked out to keep the present mill busy all summer.

STUCKEY-CONKLE.—This group of mines has reached a point of development justifying a milling plant, and surveys are being made for a pipe line to supply such a plant with water, while orders have been sent to San Francisco for a complete 5-stamp mill to be run by water power. A gravity tramway, nearly a mile in length, will connect the mine and mill.

ARIZONA.

COCHISE COUNTY.

GOLD CLIFF.—The main shaft of this mine is down 115 ft., and the face of the ledge at that depth is 48 ft. wide. Sinking is to be pushed until the 200-ft. level is reached, when another drift will be made. Shaft No. 2 has been started 200 ft. from the first shaft on the ledge and a good quality of shipping ore has been encountered, the sacking of which will be commenced at once.

YAVAPAI COUNTY.

ETTA.—This mine, 15 miles from Jerome, on the Verde, will be started up at once by Hugo Clark and W. R. Riley.

CONGRESS.—W. F. Stanton, superintendent of this mine, reports that they are opening up the station at the 1,700-ft. level and milling 120 tons of ore a day, running $20 to the ton.

CALIFORNIA.

(From Our Special Correspondent.)

CALIFORNIA EXPLORATION COMPANY.—The following statements of operations are taken from the report of Richard A. Parker, general manager for this company: "The development work on the properties has proved very satisfactory, and several of the mines bonded will be equipped with the most approved modern machinery, and the work continued to a greater depth. The Maloney has one pay chute developed and the second one is entered upon, the ore proving very satisfactory. Two tunnels are in progress, one being in 400 ft.

"At the Bund, the old shaft shows a seam of quartz, and about 12 ft. of schist, averaging over $3 per ton. The second shaft is down 153 ft., but the water proving troublesome, a small steam plant will be put in. The Burgess, at a depth of 103 ft. encountered the first pay chute, 8 in. in width, which widened out to 4 ft. of pay ore, of an average of $8 per ton, at 115 ft. No crosscutting has been done yet. A 20-stamp mill, engine, boilers, concentrators, etc., are on the property. At the Golden Hill a series of trenches have been cut and two shafts sunk, developing a good body of pay ore averaging about $8 per ton; 650 ft. of the adjoining land has been secured to enable them to follow the trend of the vein. The Vair Tunnel was started last November, and has progressed at the rate of 100 ft. per month, and probably it will have to be run in 1,400 ft. before reaching the river bed, for which they are driving. The tunnel is now in 280 ft., of ample size and well timbered. The tunnel at the Gottschalk is being run at the rate of 100 ft. per month, to reach the bottom of the De Golyer shaft, through which it is not practicable to do any more work. At this level, 193 ft. below the surface, there are two pay chutes of $6 in rock, 10 ft. wide, ready for stoping. Orders for electrical machiney to sink 500 ft. have been placed, and the machinery will be in position by April 1st. All of the above properties are in Calaveras County, in the vicinity of Mokelumne Hill, and San Andreas.

"The Belleview, 6 miles southeast of Sonora, Tuolumne County, has been bonded from the Belleview Mining and Agricultural Company, under an agreement to sink an additional 200 ft. to the 775-ft. level, and then drift about 500 ft. to ascertain if the pay chute continues to that depth. If satisfactory, then the property will be purchased. It consists of 800 acres of land and a 10-stamp mill. On the property is a promising but unexplored vein, in addition to the one now being developed, which is 14 ft. wide on the 575-ft. level and has been developed for about 500 ft. in length. Assays average from $4 to $22 per ton.

"The surveys for the Electric Power and Light Line in Calaveras County have been completed and the erection of poles is well under way; by March 1st the line will be ready to receive power. Contracts have been made to furnish light to parties in Mokelumne Hill and San Andreas, which will amount to about $500 per month. The contracts for power will be the main income.

"The water supply for battery purposes has been secured for the mines by the purchase of a reservoir at San Antonio Creek, about 11 miles from San Andreas. Water can also be obtained from streams in the vicinity of several of the properties, and pumped by electricity.

"The power plant at Blue Lakes City, on the Mokelumne River, will be in operation about April 1st. The pipe line having a fall of 1,043 ft., developing 2⅛ H. P. for each miner's inch of water, is partly laid, and provision has been made to utilize the full capacity of the ditch, 3,000 miner's inches The preliminary installment will consist of two 750-K. W. two-phase Stanley generators. The rate to be charged will range from $6.50 to $10 per month per horse-power."

EL DORADO COUNTY.

GARIBALDA.—This mine, at Greenwood, is owned by San Francisco people. The tunnel is in between 300 and 400 ft., and has a ledge 8 ft. wide, the ore found there assaying $8 per ton.

GRIFFITHS CONSOLIDATED.—This gold mine is reported to have been sold to J. G. Gow for $200,000. The Griffiths is on the northern lode and has a shaft 140 ft. deep.

LUCKY MARIAN.—A 20-stamp mill is being erected which will be in position to begin work before the end of February. The shaft is 110 ft. deep and the ledge in south drift is 19 ft. in width. Superintendent Nier intends pushing the work along vigorously.

OHIO.—C. W. Keeney, superintendent of this mine, half a mile from Greenwood, is working 10 men day and night. The shaft is 300 ft. deep, with good ore in the bottom. The mine is bonded by San Francisco parties.

WELCH.—On this mine, north of the Ohio mine, near Greenwood, a shaft is being sunk that is now 150 ft. deep.

INYO COUNTY.

LAST CHANCE NO. 2, SOUTHWEST AND SUNSHINE.—It is reported that Bassett & Smith, of Pomona, have just completed the sale of this group of mines, located in the Coso mining district, for $80,000, a first payment of $40,000 cash having been made. The Last Chance No. 2 mine has been a paying property for the past three years, the late owners' shipments to smelter having brought in upward of $132,000. Since the bond was given on the property a rich strike has been made.

KERN COUNTY.

RANDSBURG DISTRICT.—The miners and claim owners have adopted a mining code, the important features of which are as follows:

After discovery has been made of a vein bearing mineral the discoverer shall have 30 days from the date of discovery in which to complete and record his location. The area of a mining claim in this district shall be as now by United States laws provided, not to exceed 1,500 ft. in length, with 300 ft. on each side of the vein, and such surface boundaries shall be marked by five monuments, one at each corner, with an initial monument at the point of discovery, each monument not to be less than 2½ ft. high, with a notice placed therein, showing the designated corner of the claim with relation to the same. The locator of any location hereafter made shall post at the point of discovery in some conspicuous place on the initial monument an exact copy of his location certificate, written in plain English. Such location certificate shall have inscribed thereon the name of the discoverer and the name of the vein or lode, with the date of discovery. All claims shall be recorded in the office of the recorder of this district except those heretofore recorded before the adoption of these by-laws. If any locator shall fail to record his certificate of location within 30 days after discovery such claim or ground shall be open to location, but not by the original locator as a relocation.

LASSEN COUNTY.

(From an Occasional Correspondent.)

ANTELOPE MOUNTAIN.—W. H. Burrill and others of Susanville, have been prospecting for some time at a point near the "Antelope grade," about five miles east of Susanville. The shaft is now down 125 ft., at which depth the ledge is reported 8 ft. in width. A recent assay gives the value of the ore at $254 in gold and $4 silver. It is said to be face milling. The owners will probably erect a mill as soon as possible. In the meantime prospecting will be continued.

GOLDEN EAGLE.—Early in December this mine was shut down owing to dissatisfaction on the part of the miners. While the mine was paying the owners, the owners were not paying the miners, hence the trouble. All acounts have, I believe, been satisfactorily adjusted, and the mine is shut down indefinitely.

HAYSEED.—This mine, at Hayden Hill, has resumed work. The property was recently enlarged by the purchase of a part of the Brush Hill ground. Work is being pushed on the 180-ft. level with a large body of $20 ore in sight.

LOS ANGELES COUNTY.

MILKMAID.—A. C. Hamilton, of Santa Monica, has purchased this mine from John Sonter; price stated, $20,000. He will at once develop the property and take out the large body of ore in sight.

NEVADA COUNTY.

BRUNSWICK CONSOLIDATED GOLD MINING COMPANY.—In a letter dated February 4th, from Grass Valley, where the company's property is located, Mr. C. H. Mallen, the superintendent, writes to the New York office as follows: "The water is out of the mine and the miners have commenced work again. The mill started up this morning and everything is working nicely. The ore that is showing up in the mine is of good quality and the ledge is fair in size. The pumps are poor, and I intend to replace them as soon as we are able. The time lost in repairing them will soon pay for the machinery required to do the work."

(From Our Special Correspondent.)

BULLION.—The double compartment incline shaft at this mine, 2½ miles south of Grass Valley, is down 760 ft. The ledge is supposed to be an extension of the Alaska mine. Twenty-five men are employed. An electric plant will be put in, also a 20-stamp mill.

PEARCE.—At this mine, on Bear River, 2½ miles from You Bet, some good ore has been struck and a 5-stamp mill is being erected. This mine is under $30,000 bond to San Francisco parties.

SUMMIT CONSOLIDATED GOLD MINING COMPANY.—The claims known as the Dodo, Fortuna & Orleans mines, located 1 mile south of Nevada City, which has been worked under a bond for the past year, have been sold to this company for $50,000. The old shaft in the Fortuna has been cleaned out and sunk deeper and a steam hoist and pumps put in. Ten men are employed.

SAN DIEGO COUNTY.

(From Our Special Correspondent.)

READY RELIEF.—An 18-in. ledge assaying very high is reported to have been uncovered at this mine, located in Banner. The mine is at an elevation of 2,900 ft. and is being worked through three adits. A 12-ft. Pelton wheel furnishes power to the 10-stamp mill.

STONEWALL.—E. W. Sebben, of Denver, Colo., is said to have purchased the Cuyamaca grant and this mine for $125,000. The Cuyamaca grant is 50 miles from San Diego and embraces 35,500 acres. The Stonewall mine was developed by the late Governor Waterman, who is reported to have taken $1,000,000 to $2,0000,000 out of the property. The mine is supplied with much machinery, but the shafts have been filled with water for a long time. Mr. Sebben is also reported to have purchased the Helvetia mine, near Julian.

SHASTA COUNTY.

(From Our Special Correspondent.)

MOUNTAIN MINES, LIMITED.—The terminal station for three Hallidie wire ropeways, with a capacity of 180 tons every 10 hours, are being erected by this company at Keswick. The ropeways will be used to convey ore directly to the smelter after it has been roasted at the kilns. A great deal of low-grade ore is being bought by this company to be used as a flux for the copper ores in their smelter.

PRINCESS HYDRAULIC MINING COMPANY.—This company has completed its ditch from Boulder Creek to Horsetown, about 11 miles. The water has been turned in, and the giant has been started in their mine at Horsetown. The large deposit owned by this company prospects well and promises to be a good mine.

SHASTA GROUP GOLD MINING COMPANY.—This company has bonded for a year the Gem, Kirk, Hammond, So. Extension of Jones and the Kortick mines, also a water right and a townsite, all in the South Park mining district; price, $15,000.

SIERRA COUNTY.

(From Our Special Correspondent.)

DOWNIEVILLE ELECTRIC COMPANY.—This company has been incorporated with capital of 20,000 shares at $1 each. Directors: Robert Forbes, Earle McDonald, Aden Denmire, W. V. Lockwood and R. B. Elder. Principal office to be in Downieville.

SISKIYOU COUNTY.

(From Our Special Correspondent.)

KLAMATH FLUME AND MINING COMPANY.—This company is working the Nolton properties in the Happy Camp District. The work on the Fourteen will be pushed as rapidly as possible. About $50,000 will be spent to put the mines in shape.

YUBA COUNTY.

(From Our Special Correspondent.)

DANNEBORG.—At this mine, located at Brown's Valley, a rich strike has been reported in the east drift at the 700-ft. level. The ledge is 7 ft. wide, carrying free gold. This mine has produced over $75,000 during the past six months.

COLORADO.

BOULDER COUNTY.

ADIT MINING COMPANY.—A strike was made recently in the big tunnel of this company, the last shots exposing 2 ft. of vein matter in which is a 6-in. streak of smelting ore. The vein has been followed for 600 or more feet.

SAN BLAS MINING COMPANY.—This company is putting its tunnel in working shape. An ore-house is also being put up. The miners recently began crosscutting east from the inner limit of the tunnel, breaking in on the wall of milling ore with a view of ascertaining its extent and exploring ground where it is thought good values prevail.

CLEAR CREEK COUNTY.

(From Our Special Correspondent.)

ALBRO.—This mine, located at Dumont, has been sold to M. E. Smith, of Denver, for Eastern people for $200,000, the transfer having been completed February 13th. The Albro is one of the oldest locations in that section and has long been a producer of both smelting and concentrating ore. The values of the former run from $60 to $125 per ton; in a level from the shaft the streak of $87 ore measures 15 in. wide.

There is also about 2 ft. of concentrating ore in all parts of the mine. The shaft is down 400 ft. with the longest level 700 ft. It has been under development for the past year, yet enough ore has been taken out to pay for this work.

ALKIRE.—The Denver parties operating this group of mines at Dumont, are arranging for their better development, and an upraise is being put through from the tunnel to the surface, when a plant of machinery will be installed for sinking a deep shaft below the level of the creek.

ELLIOTT & BARKER.—This is the name of a mine at Idaho Springs which passed out of the hands of the owners of the same name to C. J. George, of and representing Pittsburg, Pa., capital. The purchase price is reported at $30,000, one-half of which was paid down at the time of transfer. The mine is a new one and is located near the Stanley properties. It has been producing quite heavily and for over a year was under development.

GEM.—Mr. W. E. Renshaw is opening up this property on Seaton Mountain, at Idaho Springs, on an extensive scale. The shaft is going down, having reached a depth of 475 ft. and disclosing the best ore bodies. All levels above are being worked with good results.

LAMARTINE.—This mine, at Idaho Springs, is now worked almost exclusively by leasers, there being 120 men employed in the mine. In driving levels new ore bodies have been uncovered and the mine is producing a heavy tonnage of high-grade ore. Its past record is over $3,000,000. The New York owners, however, are working a force in the shaft at 900 ft. and are also continuing the tunnel toward Hanchett Hill on the west.

DOUGLAS COUNTY.

BLACK CANON.—At a depth of 50 ft. this claim, owned by Mr. Gutbrie, has encountered a deposit of quartz carrying galena and gold. A carload is being sorted for shipment.

GERTRUDE.—This mine, on Kittredge Mountain, has encountered a good lead. the ore taken from the depth of 11 ft. assaying well in gold.

GRACIE.—James Dennis, owner of this and other claims, announces that he has arranged for the erection of a 10-ton cyanide and chlorination mill on his property and that the construction will commence at once. He states that the average value of the ores contained in his claims is $40 per ton.

SURE PAY.—Herb & Huff are in 200 ft. with their tunnel on this lode, on Stony Point Mountain. The vein averages 28 in. and a mill run is said to give $19 in gold and $3.80 in silver.

EL PASO COUNTY—CRIPPLE CREEK DISTRICT.

(From Our Special Correspondent.)

ANCHORIA-LELAND.—The output for January was a little over $20,000. The shaft has been sunk 750 ft. deep and stations have been cut at uniform distances and drifts extended at the vein both north and south, but no stoping has been done below the first or 287-ft. level. Below that point all has been development, only mineral enough being mined to pay expenses and to leave a profit of $6,000, equal to 1c. dividend per share each month. The flow of water does not seem to increase with depth.

DASHWOOD.—This lease, on Beacon Hill, is being worked by Dr. Lanterman and others. Twelve men are sinking a vertical shaft which, although only 60 ft. deep, contains much water. The Lindsay, an adjoining lease, is a steady shipper, and it is reported that the owner was offered a bonus of $50,000 for same.

ELKTON.—The output for January was over $73,000, the mill ore, about 275 tons, realizing a gross value of $12,643, and a net value of $9,350, or $34 per ton; the smelting ore, about 300 tons, of a gross value of $67,131, and a net value of $62,670. The average of the smelting was about $288 per ton, or the value of the 575 tons about $125 per ton. The total in the treasury is now about $215,000. This mine for the past six months has the highest average of any mine in the camp. A list of six samples, taken in the ordinary day's work recently, yielded gold at the rate of $298, $306, $192, $50 40, $9.40 and $120 per ton, or an average of $147.66. Development work is being pushed all the time. The water is now easily handled.

EL PASO REDUCTION MILL.—This mill for the month of January treated 1,400 tons of ore, of the value of $28.50 a ton, or $39,900 for the month. This company has commenced excavations for a new chorination plant at Florence.

GLOBE HILL TUNNEL.—This tunnel has pierced Gold Hill 1,080 ft. and has attained a depth of over 300 ft. just a few feet above water level. The object is to drain the west side of Gold Hill, and to continue its course northeast under Globe Hill. The McCart-Burbridge Investment Company is the local manager, and Baltimore people have supplied some $50,000 capital to carry out the work.

GRANITE HILL.—This mine, in Poverty Gulch, worked under lease, is not such a prolific shipper as a few months ago. The shaft has been sunk 160 ft. but the value in the ore chute has to a degree disappeared.

JANUARY OUTPUT.—From the most reliable sources the output of January was: Smelting ore, 7,470 tons at $75 per ton, $560,250; milling ore, 10,410 tons at $27 per ton, $281,070; total, $841,320. January, 1897, is now the banner month in the history of the camp.

MAY-BELLE.—On this lease, on the Lawrence Town, site, a steam hoist has been erected on a 120-ft. shaft and good and substantial ore-bins have been built. The vein is in granite and the ore is granitic with fluorite predominating.

MIDGET.—This mine, on Gold Hill, has resumed sinking below the 350-ft. level. Lately they commenced to ship screenings, sampling from 1½ oz. to 2 oz.

NUGGET MINING COMPANY.—This company, owning both the Elizabeth Cooper and the Katherine on Raven Hill, is working both claims. The Katherine is working some men on the south end of the claim. The Elizabeth Cooper is being worked by three sets of lessees.

PHARMACIST.—This Bull Hill property's new shaft has been sunk 380 ft. The north drift has been extended 50 ft. and has yielded well. The deposit is not well defined or regular; sometimes 5 ft. to 7 ft. of ore is of an average grade of 3 oz. to 5 oz., and at other times, probably the next hour, although retaining the size, it does not retain the value, and vice versa.

PROPPER.—This claim, adjoining the C. O. D. in Poverty Gulch, recently made a 10-ton shipment of $30 ore from a shaft 30 ft. deep from a vein 18 in. wide. The property is worked under lease and bond.

SANTA RITA.—This mine, on Squaw Mountain, from a north drift at the bottom of the shaft recently shipped 3½ tons of ore which netted $1,610. Mr. Frank Caley is the lessee and part owner.

STRONG.—This mine, on Battle Mountain, is worked by three Colorado Springs gentlemen. In December, 1892, the present owners took possession under a $50,000 bond, with $10,000 cash payment. On the completion of one winze, one of the owners estimated he has blocked out ore from which he can mine 200 tons a day for two years. The ore runs from 2 oz. to 4 oz.

VICTOR.—The output for January was close to 2,000 tons. The main shaft has been sunk 500 ft., and at that point a large station is being cut as a pump station, although at present there is no water.

GILPIN COUNTY.

(From Our Special Correspondent.)

BARKER.—On February 4th the shaft-house on this mine, on Quartz Hill, was burnt down. The property is owned by Elias Goldman, of Central City, and leased to parties connected with the Gold Coin Mines Company, of New York. The loss is understood to have been only partially covered by insurance.

GREGORY-BOBTAIL.—A second-hand Deane sinking pump has been purchased for this property, being one of those thrown out from the Maid of Erin at Leadville.

HIDDEN TREASURE.—This mine has just commenced shipping its ore to Black Hawk over the Gilpin County tramway line. Connection with the tramway was completed some weeks ago, but shipments over the line were delayed until the return of Manager Dickey from New York. The water has been taken out to below the 1,100-ft. level, which is now being cleared.

REVIEW.—A new shaft-house is being built on this property, adjoining the old Winnebago, to contain a good hoisting plant. The property is being worked on behalf of Samuel Newhouse, of the Newhouse tunnel.

WASHINGTON VS. ST. LOUIS JUSTICE.—The suit between these two mines was decided last week in the District Court, in favor of the latter.

LAKE COUNTY.

ROBINSON-VICTOR MINING COMPANY.—The once noted Robinson mine, 16 miles from Leadville, has passed into the hands of this company, backed by Cripple Creek men. The mine has produced in its time over $6 000,000, and a recent report of experts show 1,500,000 oz. silver in one chute available through present developments. The property comprises 76 acres of ground, and there are 36,000 ft. of workings.

(From Our Special Correspondent.)

LEADVILLE GOLD BELT.—Now that all hope of an amicable adjustment of the strike has been abandoned, the mine managers are again turning their attention and time to development work, and it is safe to predict from work now under way and from work that is being planned, that some important developments can be looked for during the next six months. All eyes are now turned in the direction of the Leadville Gold Belt, for during the past few months some very important work has been carried on.

Since the Resurrection people resumed work they have been employing only non-union men, and have been pushing developments rapidly. They have opened up a fine ore body, and are shipping about 100 tons daily. Next in line is the Sedalia, which also has a fine and rich ore body, and which is shipping 70 tons a day. Next is the Monarch Mining Company, which is shipping 20 tons daily. The Big Four people are pushing development work, and are shipping about 20 tons a day. Of course the big producer of the Breece Hill section of the belt is the Ibex property, which is now shipping over 200 tons of first-class ore daily, and at the same time is pushing new work; the most important new work on these properties is the sinking of a new shaft and the development of some new and important territory. It is learned from good authority that the Double Decker and other properties in that neighborhood are soon to start, while the Hermann is down with its new shaft over 400 ft., and the Golden Eagle, Flagstaff and Belgian are all being worked, and are shipping steadily. It can be readily seen from the above resumé that the gold belt section is far from being idle, and a great deal of good can be expected from this activity during 1897.

SOUTH EVANS GULCH.—This section of the Leadville camp promises to be the scene of a great deal of work during the summer. In the vicinity of the Arena and New Years properties there is a great deal of activity even at this early day, due to the fact that a rich chute of lead ore has been opened up in the Arena. It is understood, however, that a new shaft will be necessary in order to develop this ore body, and plans are under way for sinking the same.

THE IRON OUTPUT.—From now on a big increase in the iron output of the camp can be looked for, and it is the belief of well-informed mining men that before March 10th the iron shipments will be doubled. This is due largely to recent action taken by the smelters and a big slash is announced in treatment charges. For the past two years the treatment charges on iron have remained the same. The prices were such that no iron running less than 7 oz. in silver could be shipped at a profit. The smelters had fixed a treatment charge of $1.25 per ton on the basis of 40% excess iron, but it was found on this basis that 7-oz. iron was the lowest that could be shipped profitably. It was natural, therefore, that iron shipments should fall off. In order to stimulate shipments a reduction was made to $1 per ton, but as this did not help matters the cut was made to 75c. and contracts are being made rapidly on this basis. And further, to enable the mines to ship all their low grade ores, the smelters have made a flat rate of $2.50, to be paid for all iron running 3 oz. silver and 45% excess, 15% premium to be paid for each per cent. over 45.

As is well known, the camp abounds in great bodies of this low-grade ore, and the reductions mentioned mean the moving of big bodies of this stuff and the working of properties that have long lain idle; in fact, contracts have already been made for the Stars, Matchless, Chip, Stag, Bison, Denver City, Jason, Iron-Silver mines, and others. As near as can be learned, this is the first time in the history of the camp that 3 oz. iron could be moved.

It seems, too, that Leadville is to greatly increase her shipments of manganese iron. The readers of this *Journal* will remember that last year the Illinois Steel Company used about 20,000 tons of Leadville manganese iron. It is now learned that the Leadville ore proved very satisfactory, and that the company will get all of its manganese from the Leadville mines in the future instead of looking to foreign countries for this ore, as it did in the past.

LA PLATA COUNTY.

COLUMBUS.—The management is drifting in the vein at the 160-ft. level, and it is stated that the vein was recently crosscut from wall to wall 28 ft. The ore was sampled throughout its width, giving a gold value of $48 per ton.

LARIMER COUNTY.

NEBRASKA MINING COMPANY.—This company, which has been operating in Manhattan for a year past, shipped recently to that camp a 5-ton per day smelting plant, which will be set up near their properties, about halfway between Manhattan and Rustic, and will be employed in testing the ore that is taken from the various leads in the neighborhood.

OURAY COUNTY.

GOLDEN SAN JUAN MINING COMPANY.—This company was organized to work two claims, 1,500 × 300 ft., at Ironton, near the Yankee Girl and Augustin properties. The company is capitalized at $1,000,000, and the par value of its shares is $1. The officers are: President, H. P. Daly; secretary, Fred. Bickman; treasurer, John M. Nixon; general manager, W. L. Boyd; superintendent, Jacob Alexander; the latter gentleman has held the property now owned by the company for some time, and has done development work on it, which shows between five and ten tons of ore on the dump. The manager informed a representative of the *Engineering and Mining Journal* that the company is running a tunnel which in one direction is now in from 150 to 200 ft., and 75 feet in another. Two bodies of galena ore have been struck which run good in copper, heavy in silver and fair in gold. Work will be continued and the ore reserved until a suitable means for its treatment has been secured. Mr. Boyd says the company is waiting for the completion of the new smelters at Ouray, which is about eight miles from its property. There is said to be on the company's land a good wagon road leading to Ouray which will facilitate transportation. The company contemplates erecting a Marshall 10-stamp mill, which will cost about $2,500.

(From Our Special Correspondent.)

ALBANY.—D. B. Hagerty, of Ouray, has secured a bond and lease on this claim, Red Mountain district, and has a large force of men at work.

AURORA.—This is a new property near the Daniel Bonanza, in which a 4-ft. vein of milling ore was opened recently, together with a 7-in. streak of high-grade gold ore. Nearly a carload has already been mined, and shipments will commence February 1st.

DEMOCRAT.—This mine is located near the Calliope, about 7 miles northeast of Ouray and is being developed by Judge Theron Stevens and Emery

Howard. The tunnel is now in 350 ft. and is being pushed to cut the Calliope vein.

GRAN QUIVIRA.--Major Holford & Bro., of Wisconsin, have leased and bonded this property to Denver capitalists, who are soon to begin the erection of a mill of large capacity. The Gran Quivira was formerly located as placer ground, being relocated in 1890 by the present owners, who recognized in the zone of eruptive breccia extending through the claims promises of wealth. Twenty cuts have been made throughout the length of the several claims, in each of which gold values were found not less than $3 per ton. The property is located in the Paquin district about three miles northeast of Ouray.

RED MOUNTAIN TUNNEL.—Johnson & Kip are pushing operations in this tunnel, located at Ironton, which is being driven to catch the Treasure Trove ore chute, which is expected to occur within a few feet.

SLIDE.—This property, in the Paqui district just north of Ouray, is being developed by Johnston & Swaim, who have already shipped 80 tons of a 100-ton contract to the Sky Rocket mill. The ore runs high in silver, and carries some gold.

TROUT & FISHERMAN.—This property, almost within the limits of Ouray, is being developed by Brookfield Bros., who are the first to meet with successful results since the property was discovered. A carload of rich ore has just been shipped from the lower or contact workings, with another to follow at once.

SUMMIT COUNTY.

MOUNTAIN PRIDE.—This mine recently made a shipment of galena and carbonate ore. An incline is being sunk on the vein to follow the ore chute.

SUNDOWN GROUP.—This group, on Gibson Hill, adjoining the Extension, is being worked by the owners, who have arranged to run 400 tons of ore at the Jumbo 30-stamp mill. Hon. George W. Crow is interested in this group.

FLORIDA.

DE SOTO COUNTY.

PEACE RIVER PHOSPHATE COMPANY.—At the annual meeting in Savannah, Ga., recently, this company elected as directors Jos. Hull, H. M. Comer and H. M. Comer, Jr., of Savannah; George W. Scott, of Atlanta, Ga.; John T. Wilson, of Montreal, Canada, and R. W. Patterson, of New York. Joseph Hull was elected president; John T. Wilson, vice-president; R. W. Patterson, treasurer, and R. S. Coke, secretary. The meeting was a very satisfactory one, and it is understood a good dividend was declared.

IDAHO.

IDAHO COUNTY.

(From an Occasional Correspondent.)

BANNER.—Work has commenced on the shaft contract on this mine, for which the hoist is on road. The west drift on the 100-ft. level is still in ore of a good grade. A 10-stamp mill will be placed on the property in the spring. This property and also the Gold Bug group belongs to Spokane parties, Messrs. Glidden and Culbertson being the principal owners. Twenty men are employed, not counting the contractors.

BLOSSOM.—This property is improving, and the shaft is now 75 ft. below the level of the tunnel, The shaft is an incline and is sunk entirely on ore. A recent chute of ore encountered assayed high in gold and silver, and will average $35 per ton.

FREE COINAGE.—This claim is now being rapidly developed. A vein of ore 5 ft. wide has been struck, and it runs $12 per ton.

OZARK.—This property, which is equipped with a stamp mill, recently passed into the hands of a Moscow company, which is pushing development work under the management of A. Walker. The vein is over 3½ ft. wide, and will average $10 per ton.

RED BIRD.—This mine is now among the principal bullion producers. The 2d level adit is now in 3 ft. of ore which mills $27 per ton. This property is favorably situated for development purposes. It has been opened to a depth of 300 ft. by tunnels. It is owned by Messrs. Spottiswood, Meeks & Company.

TIP-TOP GOLD MINING COMPANY.—The crosscut turned on this property is now in about 100 ft., and before the ledge can be cut it will be necessary to run about 250 ft. Surface showings are first-class, and if the ledge holds out it will make a big property. The vein, as exposed on the surface, is 8 ft. wide and assays $20 in gold, and 40 oz. in silver, and is free-milling. This property was recently incorporated; Moscow parties are the principal owners. H. Hamlin is manager for the company.

OWYHEE COUNTY.

TRADE DOLLAR MINING AND MILLING COMPANY.—At the annual meeting of this company, held at Pittsburg, Pa., recently, the following officers were elected for the ensuing year: President, J. M. Guffey; vice-president, A. W. Mellon; secretary and treasurer, Thos. B. McKaig; superintendent, James Hutchinson.

ILLINOIS.

ST. CLAIR COUNTY.

BLOCK & HARTMAN SMELTING COMPANY.—This company's real and personal property, comprising buildings, machinery, tools, materials and 60 acres of land, 48 acres of which are coal land, will be sold on the premises near Belleville on March 10th.

KANSAS.

CHEROKEE COUNTY.

(From Our Special Correspondent.)

COMBINATION COMPANY.—On a 40-ft. acre tract lying west of Empire City and just east of Mathews and Bonanza leases, is the Old Combination mine, which several companies have worked and found some pay dirt, but abandoned after spending considerable time and money. It remained for the owners, Messrs. Cranz, Bushow & Lamley, to open up a nice body of ore. A 26-ft. face of lead and zinc ores is at 110 ft., from which they are hoisting large quantities of pay dirt that is cleaned up on hand jigs.

JACKSON & COMPANY.—On lot 46, Windsor land, they are opening up a splendid run of ore at 45 ft. This is an old shaft abandoned years ago on account of the strong water. The putting in of effective pumps is again bringing the Windsor land to the front as a producer, as only the shallow ore has been worked.

OLD GLORY.—A big strike of lead and jack was made at this mine on the Cooley land operated by W. M. Abernathy. At a depth of 97 ft. a rich face 20 × 40 ft. has been opened up, and over 50 tons of rough ore are taken out every shift.

SLUDGE MILL.—Al Emmons has purchased the interest of his brother, R. B. Emmons, in this mill, on the Bloomington land. The purchase embraces the patent on the mill for cleaning sludge dirt. Mr. Emmons has thoroughly overhauled the mill, made several improvements and has started to work. He makes about 20 tons of zinc ore and 5,000 lbs. of lead ore a week.

SUNFLOWER COMPANY.—This company has two shafts on the Mastin land, one at 60 ft. on lead, and in the other at 110 ft. on zinc ore. They are producing weekly about 15,000 lbs. of lead and a carload of zinc ore on their steam jig plant.

WOLF & HOUSER.—Joe Wolf and Ed Houser have struck a rich prospect of lead and zinc at 42 ft. in sinking on a lot on the Dixon, Atwood & Kehler 20-acre lease of the Bloomington land.

WYANDOTTE COUNTY.

KANSAS CITY CONSOLIDATED SMELTING AND REFINING COMPANY.—This company, in Argentine, started up two of its blast furnaces last week, which have been idle several months. At present the company has a lot of ore on hand to be smelted, but is not shipping any more.

MICHIGAN.

COPPER.

ARNOLD MINING COMPANY.—This company started the pumps at its shaft near Keweenan on February 15th. There is about 450 ft. of water in the shaft.

MINNESOTA.

LAKE SUPERIOR CONSOLIDATED MINES.—A Duluth despatch reports that the Merritt suit for $940,000 damages against John D. Rockefeller will never come to a retrial. The claim has been settled by the payment to Lon and Alf Merritt of $500,000 and a relinquishment in full of all their demands against Mr. Rockefeller or the mining syndicate he formed known as the Lake Superior Consolidated Mines. The settlement was made for the Merritts by J. L. Washburn, in New York, direct with Mr. Rockefeller's personal representative, F. T. Gates. The Merritt case against Rockefeller was based on alleged fraud perpetrated by the oil king in inducing the plaintiff to put his properties with Cuban and Gogebic range mines in a combination. Merritt claimed that he accepted the plan on misrepresentation of the value and financial condition of the Rockefeller properties. In the United States District Court, at Duluth, he obtained a verdict of $940,000 against Rockefeller. The latter appealed, however, to the Circuit Court of Appeals. The higher court reversed the judgment and established new rules for determining the damages, and remanded the case for new trial. A rehearsing was granted Merritt's attorneys by the Court of Appeals, but this only resulted in a denial of the petition for an amendment of the rules for determining damages, and since then there have been no new developments until now.

MINING LEGISLATION.—Bills have been introduced into the Minnesota Legislature requiring the rate for ore hauling from mines to docks to be made 5 mills per ton per mile, or less. Whether it will pass is of course problematical. It makes very little difference as a matter of fact, as iron men well know, whether it does or not. As all the big interests are either inimical or careless of such a move, it is not likely to pass.

IRON—MESABI RANGE.

(From our Special Correspondent.)

FAYAL IRON COMPANY.—This mine is increasing its force and now has about 500 men on its payrolls. It is doing fine work.

FRANKLIN MINING COMPANY.—Between 140 and 150 men are at work here at the present. About 45,000 tons of Bessemer are in stock and some 750 tons are being hoisted daily at two shafts. Large quantities of timber are being gotten out for next year's surface and underground work.

OLIVER MINING COMPANY.—Stripping will begin next month as early as possible on this mine in order to get ready for the greatest economical output for the year. At the Mountain Iron, the new property of the company, J. D. Gilchrist, long the efficient manager for the Rockefeller interests, will remain in charge. This mine will not open for the season as soon as the original Oliver, but will be at work about April 1st. It will not be difficult to mine 2,000,000 tons or more from these two mines during the year with present equipment, and the present rail facilities can probably handle so much if there is not too heavy a call from elsewhere.

IRON—VERMILION RANGE.

(From Our Special Correspondent.)

LEON IRON COMPANY.—At Duluth this company has been organized, capital stock $300,000, with Messrs. L. E. Lum, Brainerd, Minn, and C. A. Congdon and Jas. Wanless, of Duluth, as incorporators.

MINNESOTA IRON COMPANY.—This company is employing 900 men at its mines at Soudan, more than have been worked there for three years. There are some rumors of a reduced force both at Soudan and at the Chandler, at Ely, or of a lessened wage scale, but there is nothing authentic, and there is probably nothing in the talk. The Minnesota company is getting out a large amount of ore at both Soudan and Ely.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

JOPLIN ORE MARKET.—Wet weather continued a part of the week, and to it was added alternate freezing and thawing until the bottom of the roads dropped out and the teams had hard work hauling even half a load. Work in the mines was pushed vigorously on account of a more ready sale and advanced prices. The shipment of zinc ore was a carload less than the preceding week, and 8 carloads less than the corresponding period last year. The lead shipment was 3 carloads less than the preceding week and 15 carloads less than in 1896. The highest price paid for zinc ore was $22 per ton, 200 tons of Joplin ore selling at that figure. Six carloads at Webb City and one at Galena sold at $21 per ton, and other grades ranged down to $17 per ton. The top price for the corresponding week last year was $24 per ton. Lead ore held firmly all week at $17.50 per 1,000 lbs. delivered. Sales reported at $17.75 could not be confirmed. The corresponding week of 1896 lead began at $17.50 per 1,000 lbs. and closed at $17.75. Nearly all the surplus ore has been sold and shipped. Following are the sales of zinc and lead ores for the week ending February 13th, 1897: Joplin zinc, 1,065,050 lbs.; lead, 191,850 lbs.; value, $14,540; Carterville zinc, 715,840 lbs.; lead, 262,690 lbs.; value, $11,496. Webb City zinc, 806,570 lbs.; lead, 66,670 lbs.; value, $8,821. Galena, Kan., zinc, 2,900,000 lbs.; lead, 396,280 lbs.; value, $33,035. Aurora zinc, 450,000 lbs.; lead, 30,000 lbs.; value, $2,895. Oronogo zinc, 119,330 lbs.; lead, 19,060 lbs.; value, $1,533. Stott City zinc, 45,590 lbs.; value, $502. Zincite zinc, 15,110 lbs.; value, $136. District totals last week: Zinc, 6,118,290 lbs.; lead, 964,000 lbs.; value, $72,822. District totals six weeks: Zinc, 34,416,190 lbs.; lead, 5,912,390 lbs.; value, $409,012.

COCK ROBIN COMPANY.—This is the latest mine to be thoroughly equipped with new and improved machinery and is located in Chitwood Hollow. Its owners, Thayer and Chandler, are putting up buildings for their new steam hoisters, jigs and crusher. The Cock Robin was recently bought by the present owners for $10,000 and the first week's output of ore paid all expenses and a profit of 5% on the capital invested.

CRANE, CONNOR & COMPANY.—A transfer of a half interest in a 20-acre lease of Thomas Connor's land at Carterville has been made, W. S. Crane purchasing of A. B. McKee and James Roach. The other half interest in the lease is held by Thomas Connor, of Joplin, and Hon. W. H. Phelps, of St. Louis, and is not for sale. On this lease the Rising Sun has been a big producer of zinc ore, and now yields about 20,000 lbs. lead each week. The McKee mine and the Mark Hanna are good producers and the Gray Wolf Company is just developing a promising face of ore. The price paid for the half interest was $4,000.

MOLE MINING COMPANY.—This company has a lease of seven acres of the Mohaska tract at Blendsville. It has been the purpose of the company to develop a mine on each of the seven acres, and ore has been developed on six of them. The shaft now being operated is 96 ft. deep. Recently a drift was started east at 55 ft. on some good indications, and now there is a 10-ft. face of lead and jack 30 ft. from the shaft. Developments have been in progress since August. Last week they made about 10 tons of zinc ore and 5,000 lbs. of lead ore.

MONTANA.

GRANITE COUNTY.

FAIR CHANCE MINING COMPANY.—The Montana, one of the group of 25 claims owned by this company, has just been leased. The royalty accruing from one month's work on the Montana amounted to $338, which is one-quarter the value of the property. This is the sixth claim which has been leased so far. It is said that a beautiful little streak of gold quartz exists on this claim, which runs upwards of $240 per ton.

LEWIS & CLARKE COUNTY.

DRUM LUMMON.—A strike was made recently on an extension of this mine at Marysville, and if it is as important as reported it promises a resumption of work in the mine in the spring. The main leads

of this mine were reported exhausted some months ago and work was stopped. Some time afterward exploration work was commenced on a part of the property which had been kept in reserve, resulting in the recent discovery.

MADISON COUNTY.

GOLD HILL.—The tunnel in this mine, 1½ miles from Gaylord, is in about 200 ft. and taps the ledge at a depth of about 150 ft. from the surface. The ledge is irregular, widening out in some places to 3 ft. and then dropping to 6 in. A carload of ore is on the road to the Butte smelters.

SILVER BOW COUNTY.

ANDERSON.—Fred Anderson, one of the owners of this mine in the Ground Squirrel District, is making preparations to begin work on that property at once. The mine is situated south of the Iduna and west of the Glengarry. A shaft is developed to a depth of 200 ft., from which some rich stringers of ore have been taken.

BUTTE AND BOSTON CONSOLIDATED MINING COMPANY.—This company was incorporated in New York, on February 18th, with a capital stock of $2,000,000. The following are the directors: Albert S. Bigelow, Thomas Nelson, Leonard Lewisohn, Charles Van Brunt, Edw. P. Perkins, Clarence H. Bissell and Edgar Buffman.

NEVADA.

STOREY COUNTY—COMSTOCK LODE.

CONSOLIDATED CALIFORNIA & VIRGINIA MINING COMPANY.—The official report of operations in the mine for the week ending February 5th is as follows: 1,000-ft. level—The south drift started from the west crosscut at a point 124 ft. in from the top of the upraise from the west crosscut from the north drift from the Consolidated Virginia shaft station has been extended 23 ft., passing through soft porphyry, clay and quartz of low assay value; total length 80 ft. 1,650-ft. level—On the ninth floor (the first floor above the sill floor of this level) at a point 100 ft. east and 25 ft. north of an east line from the Consolidated Virginia shaft, the incline upraise has been carried up 33 ft. on the slope, passing through porphyry, clay and quartz assaying from $1 to $5 per ton; total height 70 ft. on the slope above the 1,650-ft. level. 1-750-ft. level—From the 10th, 11th and 12th floors on the east side above the sill floor of this level, at the north end of the stope in old ground of former workings, we have extracted 19 tons of ore. The average assay value, per samples taken from cars in the mine, was $29.54 per ton. The ore streak in the west drift of the 26th floor continues to show an average width of 15 in., dipping downward to the south and east. The average value of the assays across the face in the streak below the level of our drift is from $7 to $10.50 per ton. Along the east and west sides of the drift, for 8 ft. north from the face, the ore streak shows an average width of 15-in. On the east side the average assay value is about $200 per ton, while on the west side the samples assay from $70 to $120 per ton. We have extracted from this streak in working south during the past two days 7 tons of ore assaying $143.16 per ton. The total extraction of ore for the week amounted to 19 tons, the average assay value of which, per samples taken from cars hoisted to the surface, was $28 per ton.

NEW JERSEY.

NEW JERSEY ZINC COMPANY.—This company has filed a mortgage covering all its property, to secure an issue of $1,700,000 in bonds of $1,000 each. They are to bear 5% interest yearly, to have 20 years to run, and are to be met by a sinking fund, into which the company will pay $84,000 yearly, beginning with the year 1900.

The injunction suit mentioned in the *Journal* of February 13th has been dropped, and no injunction has been granted against the issue of new stocks and bonds by the company.

NEW MEXICO.

GRANT COUNTY.

APACHE CAMP.—A strike has been made at this camp, near Separ, of ore which runs high in silver and carries about $5 a ton in gold. The output of the mine will be shipped to the Deming Sampling Works.

OREGON.

BAKER COUNTY.

BONANZA.—This mine has been running 10 stamps, but from now on the mill will run 20 stamps. About 80 tons of concentrates per month, valued at $60 per ton, are shipped from the mine. The 150-H. P. boiler and engine is now in place. This mine is under the management of Albert Geiser, and the whole mill has been overhauled.

COLUMBIA.—This mine was secured last September by Minneapolis parties. Mr. Allen Case is superintendent of the mine. The company since October has erected a 10 stamp mill, also ore bins and tramways for handling of the ores. Process used is amalgamation and concentration. Plans are now being completed to add 30 stamps more to the mill in the spring. The mine has 3,500 ft. of development, consisting of tunnels, crosscuts and winzes. The mine shows large bodies of ore from 8 to 10 ft. in width, that mills $20 per ton; 40% of the value is saved on the plates, and at least 40% is saved on the frue vanners.

FRENCH FLAGSTAFF MINING COMPANY.—The Risdon Iron Works of San Francisco have secured the contract for all the machinery and power for the 10-stamp mill for this company, of Baker City.

NORTH POLE.—A 1,800-ft. tunnel on the vein and a raise of 500 ft. to the upper level has been finished on the north end of the belt. Large bodies of oxidized ore have been opened up in the upper level and a continuous body of high-grade sulphuret ore found in the lower workings and in the raise connecting the two levels. Thirty tons of oxidized ore are now being treated per day, of an average value of $30 per ton in the cyanide plant. The company is working 40 men and is owned by English parties. They bought the Ten Strike, the north extension, for $20,000 cash recently.

PENNSYLVANIA.

ANTHRACITE COAL.

PHILADELPHIA & READING COAL AND IRON COMPANY.—The directors on February 17th elected Mr. William R. Taylor vice-president. He has been for many years connected with this company and the Reading Railroad Company. Mr. W. G. Brown was at the same time elected assistant secretary of the company.

TENNESSEE.

HICKMAN COUNTY.

DUCK RIVER PHOSPHATE COMPANY.—This company, with office in Nashville, has made an assignment. The company does not specify its liabilities, but it it said they will reach way up in the thousands. G. M. Fogg is at the head of the concern.

MADISON COUNTY.

NEBRASKA MINING AND PETROLEUM COMPANY.—This company is taking options upon land in the neighborhood of Capshaw Mountain, intending to bore for oil. It have secured 25,000 acres.

UTAH.

IRON COUNTY.

GOLD HILL MINING COMPANY.—F. M. Millet is general manager of this company, recently incorporated at Provo. The company has decided to drive two long tunnels, 500 and 1,000 ft., respectively. The contract has been let for the 500-ft. tunnel, and the contractors commenced work February 4th. The 1,000-ft. tunnel will be driven from the southeast side of the range.

JUAB COUNTY.

DEFENDER MINING AND MILLING COMPANY.—This company was incorporated recently with a capital stock of $100,000. The company is formed to work the Ruby and Defender lodes at Tintic. The principal place of business is Payson. The officers are: R. E. Collet, Jr., president and director; Henry Fairbanks, Jr., vice-president and director; Orawell Simons, Jr., secretary and treasurer and director; Jesse Knight and Lester Taylor, directors.

PIUTE COUNTY.

WEDGE.—Two sets of men are being worked by W. H. Lyon, of Salt Lake City, with satisfactory results. Two tunnels are being driven and a 4-ft. body of ore has been followed for a distance of 60 ft. Some of this shows good values in gold and silver.

SALT LAKE COUNTY.

WINNAMUCK.—In the 300-ft. level of this mine, at Bingham, after running about 260 ft. east from the main incline, ore was broken into recently and it is coming in across the entire face of the drift. The ore in the 300-ft. level is high grade black oxide and gray copper, identical with that which in the upper workings made the old mine famous. The winze sinking from the tunnel level is now 500 ft. below the 200-ft. level and in solid ore, largely of shipping grade. It will connect with the 300-ft. level at about the center of the main chute, after 100 ft. more of drifting and sinking. The mine has out nearly 800 tons of ore as the result of recent developments.

SAN JUAN COUNTY.

NEW STAMP MILL.—Mr. Jackson, the pioneer stamp mill builder of the Blue Mountains, and the first discoverer of gold near Idaho Springs, Colo., about 35 years ago, has made arrangements for the building of a 20-stamp mill in the Blue Mountains, which he expects to have in operation about the middle of May. The last lot of the Gold Queen ore, amounting to nearly 117 tons, ran close to $9 per ton under stamps, and the prospects of a large production of gold from this comparatively new district are promising.

SUMMIT COUNTY.

DALY MINING COMPANY.—At the 1,200-ft. level, No 2 shaft, of the Daly mine, a vein of ore 1 ft. wide has been encountered, that seems to be the south vein which has been worked from No. 1 shaft. It carries 3 or 4 in. of high-grade ore. Although the strike is not of sufficient importance to create any excitement, it is a very encouraging one.

TOOELE COUNTY.

ANNIE.—This mine is situated midway between Mercur and Sunshine, and on a direct line with the strike of the zone that is so well defined between those points. At present a shaft has been put to a depth of 210 ft., and off that level some 800 ft. of prospecting has been done. The ledge has been encountered and material found showing values said to range from $2 to $8 in gold, but they were not uniform, and the search now will be for the pay chute.

LITTLE PITTSBURG MINING COMPANY.—The stockholders of this company held a meeting recently, and levied an assessment in the sum of $2,000, or at the rate of ½c. a share. The proceeds of the levy are to be applied to the further development of the company's property, upon which a few thousand dollars has already been expended. At the same meeting the following board of directors was elected: Ed. H. Airis, Dr. E. D. Woodruff, W. C. B. Allen, C. E. Hudson and W. H. Simmons.

VIRGINIA.

LOUISA COUNTY.

DOMINION MINING AND CHEMICAL COMPANY.—This company, of New York, met at Mineral City, on February 1st, and amended the charter by increasing the capital stock from $200,000 to $1,000,000. The company is developing gold mines in old Louisa.

ORANGE COUNTY.

MILLVIEW GOLD MINING COMPANY.—With a cash capital of $500,000, this company has commenced operation on its mine on the property of C. Stewart, near Unionville.

WASHINGTON.

SNOHOMISH COUNTY.

FANNY GROUP.—This group, composed of the New York, Fanny, Bradford, Alma and Lula claims, in Stilliquamish District, are under bond to Seattle men for $30,000. This property carries high values in copper and silver.

GREAT NORTHERN GROUP.—This group consists of the Iron Hill, Great Northern and Sunny South claims on the Great Northern ledge. A tunnel is being driven on the ledge which is in ore from the opening to the face, a distance of 120 ft. The pay streak is 8 ft. wide, while the ledge, which is also well mineralized, is 60 ft. wide. The ledge is continuous through the three claims, and assays of the pay streak give returns of 4 oz. of gold, or $80. This property is 10 miles from the Great Northern Railway, and is now being worked under bond to Seattle men.

LITTLE CHIEF AND HOODOO GROUP.—The English owners of this group are contracting for development work, to commence on March 1st. With railroad connection these properties have a large quantity of ore in sight to mine and market. A road has been surveyed and cross-sectioned from the Great Northern from Sultan City, following the course of Sultan River to the mines, some 25 miles. This road will cross the Great Northern group and other mines in the district, and also up a great deal of placer country along the route.

WYOMING.

BIGHORN COUNTY.

COAL DISCOVERY.—It is reported that a large vein of coal has been discovered on the Big Horn River, eight miles from Thermopolis. Tests made show that the coal is good for coking and steaming purposes, and a company has been formed to develop the find.

CARBON COUNTY.

DOUGLAS CONSOLIDATED MINING COMPANY.—Negotiations were arranged recently for the sale of this company's properties on Douglas Creek, in the Keystone district. With the exception of arranging a few minor details the deal is practically completed. The purchase price is placed at $80,000, and an equivalent will be spent in putting the property in working order. The Breitung Mining Syndicate of Chicago is the prospective buyer, and in working the property the new company proposes to introduce an innovation in hydraulic placer mining.

GOLDEN EAGLE.—A contract has just been let by the owners of the Golden Eagle, one of the richest prospects in the Grand Encampment district, for a 300 ft. tunnel.

SPRING CREEK PLACERS.—These placers, in the Douglas District, have been sold to an Eastern syndicate, represented by Messrs. Weir and Sturgis, of Cheyenne. The purchase price is given at $24,000 and the first payment has been made. The property, which was owned by Messrs. C. G. Wolcott, William Storey, John Storey, Thomas Hale and State Auditor W. O. Owen, contains 740 acres, extending along Spring Creek for a distance of 3½ miles. The new syndicate will at once commence work on a 6 mile ditch from Douglas Creek. This, it is estimated, will cost about $9,000 and will be completed in time for this season's work. The last clean-up made of 1,500 yds. of gravel gave nearly $1,000 in coarse gold.

FOREIGN MINING NEWS.

BRITISH COLUMBIA.

(From Our Special Correspondent.)

KOOTENAY ORE AND MATTE SHIPMENTS.—The exports of mineral from West Kootenay for January of this year, as furnished at the Nelson Custom House, were: Ore, 3,402 tons, total vaule, $675,506. These do not include 852 tons which were shipped via Nakusp and Revelstoke, and were entered at the Nelson Custom House, which is still an outpost of New Westminster. The value of these latter shipments are placed at $85,290, which brings up the

total for the month to $760,706. The shipments of ore and matte for the month of December amounted in value to $483,450. The total for December and January thus given reaches $1,244,156. These official returns are for the months named in the Slocan and Trail Creek countries, and do not include East Kootenay or West Yale.

SLOCAN DISTRICT.

(From Our Special Correspondent.)

RECO MINING AND MILLING COMPANY.—This company declared a dividend of $100,000, payable February 15th. Another dividend for the same amount is promised for the beginning of April next.

TRAIL CREEK DISTRICT.

(From Our Special Correspondent.)

NEW BRITISH COLUMBIA GOLD FIELDS.—This company was recently organized in London, England, for the purpose of controling and developing mining properties in British Columbia. Sir Charles Tupper, Bart, is chairman, and John Lowdnes is deputy chairman. The capital is $1,250,000, and the shares are $5 each. In one day $256,000 worth of stock was subscribed. The field of this company is to be East and West Kootenay, the Cariboo and Boundary districts. The headquarters of the company in this province are to be at Rossland.

NEW SMELTER.—The recent sale of the War Eagle mine to a Toronto syndicate has revived the reports current some time ago that another smelter is to be built either at Northport or on the Canadian side of the line. The report yet lacks authentic confirmation. As the capacity of the Trail Creek smelter is to be increased at once, and as shipments of ore continue to be made to other smelters south and west, there is no pressing demand for another smelter until more of the Trail Creek mines have reached the exploitation stage.

ORE SHIPMENTS.—The shipments from Rossland mines to the various smelters amounted to the following: For the period from January 1st to February 7th, 1897, Le Roi, 3,744 tons; War Eagle, 1,560; Columbia and Kootenay, 230; Iron Creek, 244; Jumbo, 91; Josie, 125; Cliff, 40; Red Mountain, 36; O. K., 14; total, 5,085. The greater part of the ore now shipped goes to American smelters.

TRAIL CREEK SMELTER.—Some time ago it was decided to put in a refining plant, the matte having been regularly shipped East to be refined. The management is authority for the statement that the capacity of the refining plant will be the entire output of the smelter, which will, with the proposed refinery addition, reach 600 tons per day.

BRITISH GUIANA.

The Blue Book of this colony gives the production of gold as below for the years ending September 30th. The figures are in crude ounces and cover a period of eight years:

	Oz.		Oz.
1888-89	20,216	1892-93	134 124
1889-90	32,332	1893-94	138.527
1890-91	66 851	1894-95	132,995
1891-92	110,555	1895-96	121,285

The decrease in 1895-96 from the preceding year was 11,710 oz., or 8·8%. The report says that it would be a mistake to regard the falling-off in the last two years as indicative of the general condition of the industry. In 1893-94 practically the whole of the available capital in the colony was devoted to placer mining, but since then a large proportion has been withdrawn for the development of quartz reefs, and the flotation of companies to work them, which so far have not yielded any return. An unremunerative interval of two years in the case of mines assaying richly and full of promise may seem long to those unfamiliar with the natural difficulties to be overcome. The dense forests, broad creeks and strong currents which must be cleared, crossed and stemmed before one ton of machinery can be taken to the spot where its work is to be done, have offered very great obstacles, perhaps as great as miner ever knew. But they have been surmounted, and in November, 1896, one mill of 20 stamps began in the heart of the Northwest District, while two others are in course of erection. From the former there has been a steady yield of about an ounce per ton. These pioneer works, carried on in a virgin forest with but a scanty supply of technical and scientific aid, have been costly, and the financial resources of the people have been severely strained. In these circumstances it is a matter for congratulation that the placer yield has maintained its position so well.

NEW GUINEA.

A correspondent of the *Australian Mining Standard* says that Bartle Bay, on the mainland of New Guinea, where gold is reported to have been found, is situated on the north coast of the British possession, about 55 miles from the most eastern cape of New Guinea. A river, which takes its rise from Mount Thompson, runs into the bay. If gold has been got at Bartle Bay there is reason to believe that it is distributed over a considerable extent of the mainland, for the Mambare River, in a straight line, is about 200 miles west of Bartle Bay. The Musa River, where gold has also been got, is about half way. From Sudest to the Mambare is about 400 miles, and before the islands were cut off from the mainland it is possible there was a continuous belt of auriferous country along the north coast.

ONTARIO.

RAT PORTAGE DISTRICT.

(From Our Special Correspondent.)

MANITOU DISTRICT.—The H. P. 301 property has been under operation by Winnipeg people, who lately had a carload of ore brought into the local reduction works for the purpose of having a mill-run test made of it. The results of the run were not made public, but it is now stated, on good authority, that the location has been sold to an English company.

SULTANA.—This mine continues to sustain its reputation as a gold producer. Additions will be made to the operating machinery in the early spring.

MIKADO.—A new steam hoisting apparatus has been placed in position on this property. A complete milling outfit will follow just as soon as navigation opens.

CORNUCOPIA.—A new hoisting apparatus has just been installed on this property.

MASTER JACK.—Excellent reports continue to come from the property, and the company has just decided to purchase the machinery necessary to further development.

QUEENSLAND.

GOLD PRODUCTION.—The total production of gold for the year 1896 is now reported at 638,212 crude oz., equivalent to 526,525 fine oz. This shows an increase of 15,212 crude oz., or 2.4% over 1895. The districts of Charters Towers and Crocodile Creek were the heaviest producers.

LATE NEWS.

MR. J. H. CLEMES, mining engineer, of Neugulay, Cornwall, England, is now on his way to the United States for the purpose of examining mining properties in the West. Letters for him may be sent for the present to the office of the *Engineering and Mining Journal* in New York.

CRAWFORD GOLD MINE.—At this mine, in Stanley County, North Carolina, our special correspondent informs us that a nugget weighing 5¼ lbs. was found on February 17th. The Crawford has been noted for its nuggets in times past.

UTAH SILVER MINE DIVIDENDS.—The Utah Silver mines seem able to keep on paying dividends, notwithstanding the low price of the white metal. On March 1st the Daly Mining Company will pay dividend No. 77 of 25c. per share, amounting to $37,500, and making a total of $2,925,000 paid to date. On the same date the Ontario Silver Mining Company will pay dividend No. 211, of 10c per share, amounting to $15,000 and making up the total to $13,385,000 paid up to date.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Feb. 19.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending February 13th, 1897, compared with the corresponding period last year:

	1897. Week.	1897. Year.	1896. Year.
Pennsylvania Railroad	73,149	536,786	454,478

PRODUCTION OF BITUMINOUS COAL in tons of 2,000 lbs. for week ending February 13th, and for years from January 1st, 1897 and 1896:

Shipped East and North:	1897. Week.	1897. Year.	1896. Year.
Allegheny, Pa.	45,225	255,875	275,744
Barclay, Pa.	1,018	5,041	5,924
Beech Creek, Pa.	71,567	437,414	440,624
Broad Top, Pa.	8,255	47,614	53.7 5
Clearfield, Pa.	87,334	682,696	599,018
Cumberland, Md.	63,047	347,977	329,831
Kanawha, W. Va.	132,553	432,900	403,051
Phila. & Erie	742	14,302	6,730
Pocahontas Flat Top	.....	.....	.....
Totals	369,741	2,203,819	2,114,657

‡ For week ending February 7th.

Shipped West:	1897. Week.	1897. Year.	1896. Year.
Monongahela, Pa.	27,258	170,252	103.351
Pittsburg, Pa.	36,971	249,801	226,854
Westmoreland, Pa.	30,833	220,983	231,198
Totals	95,062	641,036	561,403
Grand totals	464,803	2,844,855	2,676,060

Production of coke on line of Pennsylvania Railroad for the week ending February 13th, 1897, and year from January 1st, 1897, in tons of 2,000 lbs.: Week, 85,986 tons year, 534,661; to corresponding date in 1896, 652,573 tons.

Anthracite.

The quietness of the trade noted in our last report still continues, and is the main feature this week. Orders are being taken by all producers, though not in large numbers, but as business is being carried on along the firm lines that have been followed for a month past, the market is stronger in consequence. That the July circular of prices is being obtained is absolutely certain, but just how good a grade of coal is essential to command this top price is somewhat doubtful. Inferior grades are being shaded 10, 15 and 25c. per ton, and it is suggested that certain kinds are now classed as "inferior" for the sake of orders, that in times of better demand would rank as A1 coals. Of course chestnut coal is disposed of now, as for some time past, at a lower proportionate price than the other larger sizes, but this concession does not influence the rates obtained on these other sizes. The restriction of the last six weeks has brought about a scarcity of the small steam sizes, which in consequence are selling at better figures than had been obtained previously.

Spring prices, which are expected in a little more than a month, are engaging the attention of the trade, which is almost unanimous in the belief that no reduction will be made this year. The point will most likely be decided by the firmness of the market during the next month or six weeks. If the July circular can be held to during that time there will be few to advocate a reduction for spring trade. If, on the other hand, the present market conditions relax and there is a tendency to break up generally, lower prices will rule, and they will probably be announced openly. Judging from the business during 1896, reported by the various companies, they cannot hold too firmly to a price this year which will result in a balance in their favor for the year's work. The prices now asked are $3.75 for broken, $4 for egg and chestnut and $4.25 for stove.

Bituminous.

The soft coal market is still dull, though a few of the first orders on season contracts lately taken are being shipped on, and the condition of the market makes these shipments appear larger than they really are. Some of the Baltimore shipments are showing this more than those of other ports. The consuming territory east of Cape Cod is quiet at this time, everybody appearing to have plenty of coal for present consumption. Sound ports are calling for considerable coal, and the demand from them is, seemingly, at this writing, of quite a regular character. New York harbor trade is steady, and the demand is about fair. All-rail trade is slightly reduced from what it should be.

The last week has seen a continuation of the quiet closing up of contracts for the season, and the aggregate tonnage of season contracts made so far must amount to large figures. Some phenomenal prices have been reported during the week, such as $1.35 f. o. b. Philadelphia, showing that the shippers from this port can certainly meet the Baltimore lead in cutting prices, if so inclined. This price must be below cost to all parties going to make it up.

The tariff sheets of the various railroads have been issued during the last week, and in a number of instances have shown changes of policies of the different roads with the several regions.

Transportation from mines to tide is still slower than usual, though there is some improvement over last week, and coal, though delayed, can be counted on with some degree of regularity. Car supply is excellent, and all demands are fully complied with. In the coastwise vessel market there still is a great scarcity of vessels, the chief business at the present time seemingly being done with some of the largest class of vessels from Baltimore. It is expected, however, that in about a week or 10 days many of the other vessels will be coming out of winter quarters and relieving this situation, though the demand for vessels, on account of the slackness of trade, is such that the rates of freight have advanced comparatively but little.

We quote current rates of freight from Philadelphia to Boston, Salem and Portland, 85c.; Portsmouth, 90c.; Providence, New Bedford and other Sound ports, 70c. Five cents above these rates is charged from the lower shipping ports.

NOTES OF THE WEEK.

Stockholders of the Consolidation Coal Company held their annual meeting February 18th in Baltimore. Mr. Charles K. Lord was re-elected president, and the following were chosen directors: Messrs. William F. Frick, James Sloan, Jr., John W. Garrett, George C. Jenkins, John Gill, William H. Whitridge, Edward R. Bacon, James H. Quigley, Maurice Gregg and George A. Von Lingen. After the stockholders' meeting the directors met and re-elected Mr. T. K. Stuart secretary and treasurer of the company. The annual report shows that during the year the coal tonnage handled amounted to 2,416,542 tons, an increase of 239,248 tons over the preceding year, which was the largest in the history of the company, except in 1888, when it amounted to 2,424,848 tons. The report says that the company has no floating debt and is free from either construction or suspense accounts. For the year ended December 31st the gross earnings of the company were $1,690,900; operating expenses, $1,024,653; net earnings, $666,246. After paying $205,000 for a dividend of 2% due February 1st, 1897, the surplus for the year is $212,633.

Buffalo. Feb. 18.

(From Our Special Correspondent.)

There are no new features to note in the market for anthracite coal this week. Prices remain as at opening of year. Weather has changed; it is now mild and spring like, and not conducive to fuel consumption.

Bituminous coal moderately active and market a shade firmer in view of the more settled conditions of affairs among railroad companies and miners. Stocks fully adequate for trade requirements.

Our Board of Aldermen has recommended the city to make a contract with the Buffalo Electric Light Company for five years for 2,500 lamps at a cost of $100 per lamp per night. The gas light companies' bid was 80c. per 1,000 cubic feet.

The coke trade continues stationary—consumption and prices unchanged.

Trade conditions here very unsatisfactory; collections difficult and business light.

The Rochester & Pittsburg Coal and Iron Company, which has the handling of the ore that goes to the new furnaces of Messrs. Rogers, Brown & Company, of Punxsutawney, where the coke ovens of the Buffalo, Rochester & Pittsburg Railroad are situated, is preparing to put in two Brown hoists at the dock on the Blackwell Canal at Buffalo to assist the McMyler's now in use there. The furnace at Punxsutawney is to be blown in for the first time this week. Thirty thousand tons of ore were sent up there last season, and the arrangement is to ship 100,000 tons annually hereafter. The ore does not go into stock at the docks, but is loaded into cars and goes direct from the vessel.

Mr. W. H. Ball, of the firm of Messrs. J. H. & W. H. Ball, of Buffalo, has been appointed sole agent of the Pennsylvania Coal Company for the State of Michigan.

The Union Dry Dock Company, of this city, launched a mammoth oil tank for the Standard Oil Company last week. The vessel has a capacity for 940,000 gals. of crude oil on a draft of 16 ft. 10 in. The cost was $125,000. She will carry oil from Whiting, Ind., to Duluth, Minn.

Chicago. Feb. 17.

(From Our Special Correspondent.)

Anthracite.—The market is quiet. Another cold wave will revive the market. Shipments on orders placed a month or so ago are lagging, the average dealer apparently awaiting the advent of cold weather before notifying to ship. It cannot be said that the circular rates are now being maintained, for since the cold wave left us it has been a fight for the limited business going. Country dealers stocked up considerably during the recent cold spell, but since then there has been but small trade in that direction. Circular rates are grate, $5.35; egg, stove and chestnut, $5.60.

Bituminous Coal.—Trade has not increased much during the week. Those interested are complaining of the low price of soft coal, and as usual the miner has to suffer through a decrease in wages. Spring is looked forward to, as it is expected that there will be a great increase in manufacturing lines, and consequently a demand for soft coal. The increased demand for steel products, due to lower prices, is expected to stimulate trade, and, in fact, there is already some evidence that it will be so.

Pittsburg. Feb. 18.

(From Our Special Correspondent.)

Coal.—The coal trade has been reasonably active during the week. There has been good boating water right along; the last shipment was a large one, aggregating 9,530,000 bu., and the run was a successful one. The miners at Fayette City struck at the Fremont mine again at a reduction from $1.87 to $1.62 per 100 bushels.

At Massillon, O., the district strike of 2,000 miners has been declared off, and 51c. is the mining rate.

A charter has been granted to the Mingo Gas-Coal Company, of Courtney, Washington County, Pa., capital $25,000. The incorporators are John Coleman and Wm. Graffith, of Mifflin Township, Allegheny County.

The pools are bare of empties; the present stage of water will enable the big coal fleet to return with empties. The Youghiogheny Coal Company and the Moon Run Company have each presented their workmen with scales providing for a wage rate of 60c. during the year; they are now receiving 54c. per ton.

The negotiations reported some weeks ago between the Whitelead Coal Company, of West Virginia, and H. C. Frick & Company, of Pittsburg, by which the latter are to secure valuable coal and mineral lands, are announced as rapidly nearing successful conclusion.

Connellsville Coke.—The market last week was about stationary, but indications of an increased output are visible; quite a number of ovens were blown in. The burning of the shaft-head at the Davidson plant of the Frick Company, caused a change in the list of active ovens at several plants and decreased the total of the region by 20 ovens, causing a falling off in production of 250 tons. Shipments reported Thursday and Friday, going 540 tons above that of the week previous. Summary for the week shows 10,098 ovens in blast with 8,803 idle. There were several charges made during the week. The Frick Coke Company blew out 70 ovens. The production of the region for the week amounted to 95,897 tons, against 96,147 the preceding week; in the running order of the ovens in blast 3,287 ovens made six days, 5,544 ovens made five days, 1,182 ovens four days and 25 ovens seven days, an average of 5·21 days as against 5·22 days the preceding week. The week's shipments from the region were as follows: To Pittsburg and river points, 2,420 cars; to points West, 2,741 cars; to points East, 1,012 cars; total, 6,173 cars. Prices show no change, being nominal at $1.75 for furnace coke f. o. b. at ovens.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Feb. 19. 1897.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Feb. 21, 1896.		Week ending Feb. 19. 1897.		From Jan., '96.	From Jan., '97.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
Anthracite.	55	35,435	31	18,600	268,833	135,686
Coke...	140	166,830	106	141,800	1,298,519	986,114
Charcoal...	20	5,425	19	5,750	37,925	41,586
Totals ...	215	207,690	156	166,150	1,605 277	1,163,386

The market at present centers entirely around the steel rail business. The excitement over the breaking up of the steel rail pool continues, and during the week the rail mills have been busy taking orders. The extreme break in prices at first announced has been followed by a slight hardening, and prices are gradually settling down to about $18 @$20 per ton at mill. A few contracts—it is impossible to say just how many—were taken at $17, but the great bulk are at $18 and over. As to the quantity already contracted for, estimates differ somewhat; the most conservative put it at 800,000 tons, and the others range from that up to 1,000,000 tons. Probably 900,000 tons is not far from the real figure. The effect upon the general market of such an enormous bulk of new business can hardly be calculated. The demand for Bessemer pig will be very large, and an immediate increase of activity in the furnaces will at once result; while the ore market will necessarily be affected also.

The important announcement is made that the Carnegie Steel Company has taken contracts for some 100,000 tons of rails for export. Of these 11,000 tons are for Japan, and the balance for England. It is said that 25,000 tons are contracted for delivery to the London & Northwestern Company, 25,000 to the Southwestern, and the balance to other companies. As to prices, nothing is given out so far; but the current quotation of English rails is about $23.40 per ton, f. o. b. at works. At this price the Carnegie Company would realize here close to the prices now current. These sales will certainly cause much excitement in the English market, and will give the steel men there an earnest of the competition they may have to expect in the future.

Some amusement has been caused in the trade by the discovery of a New York evening paper that the rail pool was originally formed at the instigation of the railroad companies, and that the latter have favored and urged the maintenance of high prices for rails, though it is admitted that some of them believed that the 1896 prices were a little too high. The same authority anticipates that the railroad companies will unite in demanding a restoration of the pool before long.

The bar-iron combination has followed its brethren, and the trade is no longer under regulation. There has been no considerable change in prices, however, as they have been kept down for some time by the competition of soft steel bars.

New York. Feb. 19.

The past week closed without any marked improvement in the local market. Increased activity in structural work is looked for as spring comes on. We hear that the manufacturers of structural material have already bid on work and some have closed orders. The Columbia College contract for about 200 tons of plates was awarded this week to the Lukens Iron and Steel Company.

The effect of the dissolution of the Steel Rail Trust and the consequent low prices has already been felt. It is noteworthy that sealed tenders for steel rails will be received by J. H. Balderson, Secretary of the Department of Railways and Canals, Ottawa, Canada, up to 12 o'clock, noon, of March 2d, for 1,000 tons of 50-lb. steel rails, to be delivered c. i. f. on the Prince Edward Island Railway wharf at Summerside, Prince Edward Island, and 3,000 tons of 67-lb. steel rails, delivered on the Intercolonial railway wharf at Levis, opposite Quebec. Deliveries are all to be made early in July, 1897. The rails for the roads have usually been bought in England.

The Pennsylvania Steel Company secured the Metropolitan Traction Company's contract some time ago for the rails needed on its new extensions.

We understand that the Albany contract for 500 tons of cast-iron pipe was closed this week. In the export of wrought iron pipe we understand Americans are competing very keenly with Great Britain, in South Africa and other English colonies, because of the better quality of pipe.

Southern pig iron continues to be exported, and we note that 8,000 tons were booked several days ago. An order for 1,200 tons of No. 2 foundry is said to have been refused. We learn that a concern in Sweden has ordered a quantity of iron from one of our makers. Other orders are pending, and inquiries are still being received from abroad. The transportation for this iron is becoming scarcer as the cotton shipping season closes. The freight rates now being obtained to Great Britain and the European Continent will, in all probability, increase as Spring approaches.

Pig Iron.—Locally this market is without improvement and prices are nominal. In the neighborhood of New York the foundries are not in good condition. We understand that one Connecticut concern, which has three cupolas and employs in active times about 300 men, is now working only one cupola half time, because of lack of remunerative orders. In Newark, N. J., the foundries are almost shut and but one concern is said to be doing a remunerative business.

Quotations for Northern brands are $12@$12.50 for No. 1 foundry; $11.50@$12 for No. 2 foundry; $11@$11 25 for No. 2 plain, and $10.50@11 for gray forge. For Southern iron we quote: No. 1 foundry, $11.50@$12; No. 2 foundry, $10.75@$11.25; No. 3 foundry, $10.25@$10.75; No. 1 soft, $10 75@$11; No. 2 soft, @$10.50$10.75; forge, $10.25@$10.50; basic pig, $11@$11.25. All prices are for tidewater delivery.

Cast Iron Pipe.—This market is dull, while prices are being shaded whenever an order can be secured. The quotation for open market averages $20 per ton.

Spiegeleisen and Ferro-Manganese.—Demand is very small, and prices are $47@$47.50 per ton for imported 80% ferro-manganese, and $19@$19.50 for 20% spiegeleisen in New York.

Steel Billets.—The reported demand for steel rails has been somewhat of a stimulant, to the billet market but prices continue to be $15@$16 at mill

Merchant Iron and Steel.—Business is quiet and sales are small. For bars we quote: Common, 1·05@1·15c.; refined, 1·10@1·30c.; soft steel bars, 1·15@1·25c. Other quotations are: Steel hoops, 1·52½@1·55c.; steel axles, 1 60@1·75c.; links and pins, 1·60@1·70c.; tire steel, 1·70c.; spring steel, 1·95@2·15c. All prices are for delivery on dock New York.

Plates.—Trade continues small in volume and we quote for universal mill plates, 1·20@1·20c. For steel plates prices are: Tank 1·20@1·30c.; boiler shell, 1·35@1·45c.; flange, 1·45@1 55c; firebox, 1·65@1·75c., according to quality. Charcoal iron plates are 2·25 for shell, 2·75 for best flange and 3·25 for firebox. Rivets are 3@3 25c. for iron and 2 10@2·25c. for steel. Prices are for tidewater delivery.

Structural Iron and Steel.—The volume of business is not large just now, and we quote for angles, 1·20@1·30c.; tees, 1·60@1·70c.; channels, 1·70@1·80c. The price of beams, New York delivery, is 1·70c. for ordinary sizes, 1·85c. for 20-in., and 1·95c. for 24-in., large lots. For less quantities 0·10@0·25c. higher are asked.

Steel Rails and Rail Fastenings.—Standard section steel rails are quoted at $20 at mill.

For rail fastenings demand shows more inquiry. Quotations are, for angle-bars, 1·15@1·25c.; spikes, 1·60@1·65c., bolts, 1·85@1·95c. for square nuts and 1·90@2c. for hexagon nuts.

Wrought Iron Pipe.—Business is quiet. Discounts are as follows for plain pipe, out of store: 1¼ in. and over, 67, 10, 10, 10, 10 and 10%; 1¼ in. and under, 57, 10, 10, 10, 10 and 10%. Galvanized pipe, 1¼ in. and over, 55, 10, 10, 10, 10 and 10%; 1¼ in. and under, 50, 10, 10, 10, 10 and 10%. For fair sized orders these discounts are made with an additional 5%. Boiler tubes, 1 in. to 2¼ in., 70, 10 and 5%; 2¼ in. up, 75 and 5%. Cold-drawn seamless steel tubes, 60%.

Nails.—The demand has been somewhat better this week, and is likely to continue so in consequence of increased activity in building. The prices quoted for wire nails in New York are $1.60@$1.65 per keg, while cut nails are $1.40@$1.45.

Old Materials.—Prices as quoted for rails can probably be shaded. Quotations are for old iron rails $12@$13; old steel rails, $10.50@$11. Old wrought-iron pipe, $7.50@$8 per ton.

Cast Scrap.—Trade in this line continues to be light, with somewhat lower prices quoted. Good machinery scrap is selling at $9.50@$10.50 per ton; ordinary cast scrap, $8@$9.50; stove-plate and mixed, $6.50@$8. Old car wheels are $9.50@$10.50 per ton.

Buffalo. Feb. 17.

(Special Report of Rogers, Brown & Co.)

Although the iron business is far from satisfactory to either the producer or consumer in this district, yet there has been noticed during the past week a greater demand for immediate shipment for actual consumption. Besides this, inquiries are more frequent and for larger amounts. Many believe a gradual improvement can be looked for from now on. Some of the malleable works have recently taken large contracts for railroad work. However, prices still remain weak and a good-sized inquiry for immediate shipment would probably be accepted on a slightly lower basis than mentioned below. Our quotations are on the cash basis f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $12.00; No. 2 strong foundry coke iron, Lake Superior ore, $11.50; Ohio strong softener No. 1, $12.25; Ohio strong softener No. 2, $11.75; Jackson County silvery No. 1, $14 25; Southern soft No. 1, $12.00; Southern soft No. 2, $11.50; Lake Superior charcoal, $14.00.

Chicago. Feb. 17.

(From Our Special Correspondent.)

Pig Iron.—No business of any proportions has been transacted during the past week. Sales continue in quantities of from carload to a few hundred tons, and the aggregate would not foot up beyond 3,000 tons. There is, however, a great deal better inquiry. The enormous orders placed

throughout the country for rails will assuredly stimulate the pig-iron trade. In Northern iron prices are firm at ruling quotations, and as the present prices are rock bottom, it is expected that if anything the price will advance. In Southern iron there is cutting to obtain business, but a number of the furnaces appear to hold steady to quotations. Bessemer iron has advanced 25c. per ton. We quote: Lake Superior charcoal, $13.50@$14; local coke foundry No. 1, $11.50@$12.00; No. 2, $11.00@$11.50; No. 3, $10.75@$11; local Scotch foundry No. 1, $11.50@$12; No. 2, $11@$11.50; No. 3, $10.75@$11. Southern coke No. 1, $11.15@$11.40; No. 2, $10.65@$11.15; No. 3, $10.40@$10.65; Southern No. 1 soft, $10.90@$11.40; No. 2 soft, $10 65@$10.90; Jackson County silveries, $14@$16; Ohio silveries No. 1, $15@$15.50; Ohio silveries No. 2, $14.50@$15.00; Alabama car wheel, $16@$16.50; coke Bessemer, $13.25@$13.75.

Bar Iron.—There has been some buying of bars by railroads for car work, but outside of that business is not large. Bars are quoted for common iron 1·25@1·30c.

Steel Rails.—During the past week the sales of steel rails made by the local concerns have footed up a great total. The reduction in price has greatly stimulated buying, and it is understood that nearly every prominent road in the West has purchased or is about to purchase rails. The business transacted during the past week has been almost entirely on a $21 per ton basis, and at that figure the local companies appear to be satisfied to gather in all the business offered. The works of the Illinois Steel Company at South Chicago are again in blast, and it has given employment to thousands of men, but at reduced wages.

Billets.—Business has been more active in billets, and inquiry would make it appear that the coming weeks would bring a much increased trade. Billets are quoted at $17, Chicago.

Structural Material.—One fair contract for bridge material for a prominent railroad was placed. Other business is only in a small way. Inquiry is somewhat more active. Quotations are: Beams and channels, 1·70@1·80c.; angles, 1·25@1·30c.; plates, 1·25@1·30c.; tees, 1·50@1·55c.

Cleveland, O. Feb. 16.

(From Our Special Correspondent.)

Iron Ore.—Considerable speculation has been indulged in during the past week by brokers, relative to the probable prices of iron ore next season. The collapse of the steel rail pool has awakened a deep interest regarding the ore prices for 1897, and whether they will be affected by the abandonment of the steel pool seems to be an open question among those who make a business of handling the output of the ore ranges, The members of the Western Iron Ore Association, which will fix the price for the year, are not much perturbed over the situation, it is said. Considering the situation from all its phases, it is almost certain that prices will not be the same as last year.

For one purpose or another a few sales of ore were made last week. The market, however, has been very quiet. The quotations follow: Standard hard speculars, Bessemer quality, $4.50@$5; standard hematites, Bessemer quality, $4@$4.50; standard hard hematites, non-Bessemer quality, $3.50@$4; standard soft hematites, non-Bessemer quality, $2.50@$3.25.

Pig Iron.—The pig iron market has recovered somewhat as a result of the breaking of the steel rail and bar iron pools. On account of the slightly increased demand for this variety of iron the quotations this week are about 25 cents a ton higher. The other varieties are offered for sale at shaded prices. The following are the quotations: Lake Superior charcoal, $13.50; Bessemer, $11@$11.25; No. 1 foundry, $11.65; No 2, $11.15; No. 1 Ohio Scotch, $11.15; No. 2, $10 65; Mahoning and Shenango Valley neutral mill irons, $9.75@$10; Mahoning and Shenango Valley red shortmills, $9.75@$10.

Pittsburg. Feb. 18.

(From Our Special Correspondent).

Raw Iron and Steel.—Business is showing large signs of improvement. According to the opinion of many of the best informed iron men the events of last week, in regard to steel-rail prices, are certain to produce a better iron market. As relates to prices and demand the previous week will long be remembered for the heavy decline, and large operations in steel rails, and railroads were not slow to take advantage. Combinations are not looked upon favorably by the community, generally, at present; they seem to have had their day and must go. Sales of 800,000 tons rails in 48 hours no doubt beat all previous records. There are many strange movements going on in the iron business; last week a Delaware iron merchant purchased from a Pittsburg firm 10,000 tons basic pig iron, delivered at $10.50 in four months. There are other surprises that will be noted later; the world moves, and those who don't catch on will be left.

Eastern and Western mills cannot fail to be benefited even though the profits of the manufacturer will be seriously reduced. The general trade regard the matter very favorably and as likely to have a beneficial effect upon the market for other forms of iron and steel. The local pig iron market so ar has shown little change for the better; with the ailure of consumers to buy in excess of their immediate wants, and the determination of some producers to force business by concessions on quoted rates, the trade has naturally shown a rather weak front. Even though the market is weak, there is some consolation in the fact that a heavier business is being transacted and it is only by an active buying movement that the market can be brought in a position to advance.

The good time we have been waiting for has arrived during the past 48 hours—prices have advanced all along the line. Sales have been made of the following articles at an advance: Billets, Bessemer, Pittsburg and Ohio Valley; mill iron and skelp steel. Holders of leading articles are indifferent about selling, contending that prices will go higher. Steel rail plants have sold all they want, and are holding off; prices are nominal at $18. Carnegie's big Edgar Thomson plant is running double time on steel rails. The Ainsworth Steel plant, President W. P. Snyder, is running double time on billets. Jones & Laughlin's American plant has no billets for sale. The steel rail pool is gone, and those remaining will soon follow. Large additions of workmen have been added to the Pittsburg mills and furnaces during the week.

COKE, SMELTED, LAKE AND NATIVE ORE.

Tons.		Cash.
5,000	Bessemer, Mar., April, May, Valley	$10.25
5,600	Bessemer, Mar., April, May, Valley	10.00
350	Bessemer, Mar., April, Pitts	10.75
3,000	Bessemer, Feb., Mar., Apr., Pitts	10.50
1,500	Mill Iron, April, May, Pitts	9.65
1,000	Bessemer, Feb., Valley	9.35
1,000	Bessemer, Mar., April, May, Valley	9.95
500	Mill Iron, Mar., Pitts	9.60
500	Mill Iron, Feb., Pitts	9.50
500	No. 2 Foundry, prompt, Pitts	11.50
300	Bessemer, prompt Pitts	10.60
200	No. 2 Foundry, Mar., Pitts	10.50
160	No. 2 Foundry, Feb., Pitts	11.60
100	No. 1 Foundry, spot, Pitts	11.00
100	Molded, spot, Pitts	9.25
56	No. 2 Foundry, Pitts	11.50
50	No. 2 Foundry, Pitts	11.25
50	No. 2 Foundry, Pitts	11.40
28	No. 2 Foundry, Pitts	11.40
28	No. 2 Foundry, Pitts	11.45

CHARCOAL.

100	No. 2 Foundry, Pitts	15.60
50	No. 4 Foundry, Pitts	15.50
50	Cold Blast, Pitts	23.50
25	White, Pitts	20.00
25	W. B. Extra, Pitts	21.50

BLOOMS, BILLETS, SLABS.

1,800	Billets, Pitts	$15.25
1,000	Billets, Pitts	15.75
800	Billets, Pitts	16.00
500	Billets, Pitts	15.85
300	Billets, Pitts	15 75

MUCK BAR.

600	Neutral, delivered, Pitts	$19.50

BLOOMS, BILLETS, BAR ENDS.

700	Billet ends, delivered, Pitts	$12.00

SHEET BARS.

1,000	Delivered, Pitts	$19.00
500	Delivered, Pitts	19.00

STEEL WIRE RODS.

5,000	At mill, Pitts	$21.00

FERRO-MANGANESE.

300	80 per cent., delivered, Pitts	$46.00

SKELP IRON.

1,000	Sheared, Pitts	$1.30 4 m.
350	Sheared, Pitts	1.30 4 m.
300	Wide grooved, Pitts	$1.15 4 m.
200	Narrow grooved, Pitts	1.15 4 m.

SKELP STEEL.

500	Sheared, Pitts	$1.15 4 m.
500	Wide grooved, Pitts	.95 4 m.
300	Narrow grooved, Pitts	.95 4 m.

Philadelphia. Feb. 18.

(From Our Special Correspondent.)

Pig Iron.—Local pig iron makers complain that no pronounced benefit has yet come to them from the boom in steel rails. They all say prices are just where they have been. Foundry men show replies to inquiries for bottom prices, substantiating these statements. Mill owners take no interest whatever in the market. Iron for steel purposes is selling much better than it has been, but after all the aggregate of business is small. The entire market has its attention riveted on the steel rail situation. The condition of business this week is a surprise to the iron trade. No. 1 Foundry is $12.75@$13.25; No. 2, $11.75@$12.25; forge, $10.75@$11.25; Basic iron, $10 50; Bessemer asking price, $13.

Steel Billets.—The steel rail surprise has hardened quotations from 50c. to $1. Manufacturers have wired withdrawals of some exceptionally low quotations. The upward tendency is not stimulating demand.

Merchant Iron.—The only encouraging feature developed itself to-day in the shape of an inquiry for a large lot or two of car building iron. The current requirements are light. Car lots are quoted at 1·15; refined, 1·25@1·30. Steel bars are firm at 1·20@1.30.

Sheets.—The accumulation of stocks during the past few days shows that buyers are holding off unusually long. Prices have accordingly weakened where an advance would be naturally expected.

Skelp.—The condition of the skelp iron market is one of exceptional dullness.

Pipes and Tubes.—"Nothing definite can be given out just yet," is the only response the people have to make.

Merchant Steel.—Quite a number of orders for our eastern territory have been delivered during the past week. Work calling for merchant steel is slowly picking up.

Plate and Tank.—Traveling agents are sending in better reports, but the greater part of the new work is for small lots. They say, however, that seldom in their experience have they found as much contemplated work. Boiler and engine work is of good volume. Competition continues to keep prices at a barely remunerative point, but it is work that is urgently wanted.

Structural Material.—The only statement vouchsafed this week is that matters are more promising. There is elevator and terminal and bridge building work in sight, which means big business sooner or later.

Steel Rails.—The reaction appears to have set in, and if the plans now entertained are carried out prices will reach $20. They are at that figure now, but railroad men are waiting to see what Western Pennsylvania will finally settle down to. The greatest interest is felt in the market, and as soon as some of the directories can meet to decide upon 1897 work we are promised some surprising news.

Old Rails.—Big deals are said to be not far off, but the story does not receive the unqualified endorsement of the old rail people. Quoted at $14.

Scrap.—A few parties have bought liberally for immediate use at very attractive prices. Choice railroad scrap is more asked for than any other, and it is selling close to $13. There is a good supply of all kinds.

METAL MARKET.

NEW YORK, Friday Evening, Febuary 19, 1897.

Gold and Silver.

Prices of Silver per Ounce Troy.

February.	St. Ex.	London Pence.	N. Y. Cts.	Value of £1. in $.	February.	St. Ex.	London Pence.	N. Y. Cts.	Value of £1. in $.
13	4 86½	29¾	61¾	.501	17	4.87	29 1/16	61⅝	.500
15	4 87	29 1/16	61⅝	.500	15	4.87	29 1/16	61⅝	.500
16	4 87	29 1/16	61⅝	.500	19	4.87	29 1/16	61⅝	.500

Silver has maintained a very steady attitude. Buying has been on limited Indian orders for the past week, but orders to-day at 29¾d. on special account, destination unknown, absorbed all the silver in sight, several large amounts being placed at that figure.

The United States Assay Office in New York reports the total receipts of silver at 112,000 oz. for the week.

Average Monthly Prices of Silver

In New York and London, per ounce Troy, from January 1st, 1897, and for the years 1896 and 1895.

Month.	1897.		1896.		1895.	
	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.
January	29 74	61·79	30 69	67·13	27·36	59·69
February	.....	.....	31·01	67·67	27·47	59·90
March	.....	.....	31·34	68·40	28·33	61·98
April	.....	.....	31·10	67·92	30·39	66·61
May	.....	.....	31·08	67·88	30·61	66·75
June	.....	.....	31·46	68·69	30·47	66·64
July	.....	.....	31·45	68·75	30·48	66 75
August	.....	.....	30·93	67·34	30·40	66 61
September	.....	.....	30·19	65 68	30·54	66·90
October	.....	.....	29 68	65·05	30·89	67·64
November	.....	.....	29·46	64 98	30·79	67·42
December	.....	.....	29·70	65·24	30·40	66 47
Year	.....	.....	30·67	67·06	29·53	65·28

The New York prices are always per fine ounce, or ounce of pure silver; the London quotation is per standard ounce, or for metal 925 fine.

Gold and Silver Exports and Imports.

At all United States ports, January, 1897, and years from January 1st, 1897 and 1896:

	Coin and bullion.		In ores.		Total excess, Exp. or Imp.	
	Exports.	Imports.	Exports.	Imports.		
GOLD						
Jan..	$371,944	$556,621	$70,411	$209,055	I.	$323,321
1897..	371,944	556,621	70,411	209,055	I.	323,321
1896..	10,566,526	10,367,940	5,002	179,012	E.	22,5 7
SILV.						
Jan..	3,997,754	877,067	156,903	1,875,150	E.	1,402,440
1897..	3,997,754	877,067	156 903	1,875,150	E.	1,402,440
1896..	4,903,299	1,057,597	85,400	1,433,622	E.	2,497,480

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending February 18th, 1897, and for years from January 1st, 1897, 1896, 1895, 1894:

	Gold.		Silver.		Total Excess, Exp. or Imp.	
	Exports.	Imports.	Exports.	Imports.		
We'k	$71,545	$11,002	$632,510	$20,769	E.	$672,284
1897..	341,156	290,575	5,442,754	292,474	E.	5,200,866
1896..	9,202,885	15,079,936	5,671,583	226,915	I.	434,413
1895..	25,698,593	760,856	4,140,352	188,419	E.	28,889,670
1894..	2,692,658	1,639,018	6,933,851	194,587	E.	7,792,904

The gold exported for the week went to the West Indies, the silver to London. The gold and silver imported came chiefly from Central and South America.

FINANCIAL NOTES OF THE WEEK.

While no marked change in general business conditions can be noted during the past week, a somewhat stronger tone is evident, and there seems to be a feeling gaining ground that the coming spring will see a better trade than last year. The pressure of money at New York is beginning to lessen, and more demand is manifested at interior points. The approaching end of the present session of Congress is anticipated with a feeling of relief, and the belief is expressed that little more mischief can be done. The activity in the iron market caused by the breaking up of the steel-rail pool and the recent heavy sales of cotton goods are taken as signs of improving business.

There is a growing feeling that any legislation on the currency question must be accompanied by reforms in our banking organization also. The present system tends too much to the concentration of money at a few centers and some plan for wider distribution of banking facilities and more general accommodation of the people, especially the small local traders, farmers and manufacturers, is badly needed. The Scotch and Canadian banking systems are being carefully studied in this connection.

The foreign merchandise trade of the United States for the month of January is given as below by the Bureau of Statistics of the Treasury Department:

	1896.	1897.
Exports	$86,970,028	$94,984,067
Imports	68,647,600	51,327,081
Excess, exports	$18,322,428	$43,656,986
Add excess of exports, silver		1,402,440
Total		$45,059,426
Deduct excess of imports, gold		323,321
Net excess of exports		$44,736,105

The movement of gold and silver in detail will be found in the usual place, at the head of this column.

The continuance of heavy exports was not unexpected, but the very small imports are somewhat of a surprise. It was believed by many that purchases of foreign goods would increase, especially with the general anticipation of a higher tariff, but the figures show a decrease rather than an increase.

There are no signs of gold exports in this statement, nor are there any other reasons to expect such a movement for the present. The money market abroad is much easier; the Bank of England has again lowered its discount rate, this time from 3½% to 3%, and it is quite probable that it will go down to 2% again, unless the present trouble in the East should cause a reaction. Meantime our own Treasury gold reserve continues to increase at the rate of $1,000,000 a week. This is not at all unnatural when we remember that gold continues to show a balance of imports, and that we are producing the yellow metal at the rate of nearly $5,000,000 a month, a large part of this finding its way into the Treasury through the assay offices.

The report of the Director of the Mint for 1895-96, just issued, contains tables showing circulation of money in the different countries of the world in 1896, as compared with 1873. His tables show that the per capita circulation of the United States has increased within these 24 years from $21.36 to $24.03; the circulation of the United Kingdom from $9.90 to $20.80; the circulation of Germany from $13.59 to $19.28; the circulation of Belgium from $14.44 to $28.49; the circulation of Italy from $4.88 to $9.96; and the circulation of the Netherlands from $16.56 to $24.06. The metallic circulation of the United States in 1873 was $3.23 gold and $0.15 silver per capita in 1896 it was $8.40 gold and $8.81 silver per capita.

Exports of specie by water from San Francisco in January are reported as below:

	Silver.	Gold.	Total.
China	$557,231	$2,017	$559,248
Japan	504,440		504,440
Honolulu	15,100	100,000	115,100
New York	7,000	42,665	49,665
Totals	$1,083,771	$144,682	$1,228,453
Totals, 1896	672,153	2,864,519	3,536,672

In 1896 there were heavy shipments of gold coin to New York. The descriptions shipped this year were: Silver bars, $512,540; Mexican dollars, $545,931; Peruvian sols, $3,200; United States coin, $22,100; total silver, $1,083,771. The gold was all in United States coin.

The statement of the United States Treasury on Thursday, February 18th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Feb. 10.	Feb. 18.	Changes.	
Gold	$145,723,226	$146,969,923	I.	$1,246,697
Silver	19,883,761	20,098,766	I.	215,005
Legal tenders	10,641,026	9,596,266	D.	1,044,760
Treasury notes, etc.	40,137,190	33,208,155	D.	6,929,035
Totals	$216,385,203	$209,873,110	D.	$6,512,093

Treasury deposits with national banks amounted to $16,571,759, a decrease of $3,919 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, $117,630,280. Against these are held in the Treasury 9,230,608 coined standard silver dollars and silver bullion purchased at a cost of $108,399,672, making a total of $117,630,280.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending February 13th, gives the following totals, comparisons being made with the corresponding weeks in 1896 and 1895:

	1895.	1896.	1897.
Loans and discounts	$483,382,000	$451,743,100	$500,367,700
Deposits	532,234,700	493,032,900	568,075,100
Circulation	11,641,700	13,206,400	16,723,500
Reserve:			
Specie	81,422,700	70,358,400	80,192,500
Legal tenders	85,149,400	89,718,700	113,464,500
Total reserve	$166,572,100	$160,077,100	$193,657,000
Legal requirement	133,058,675	123,258,250	142,018,775
Surplus reserve	$33,513,425	$36,818,850	$51,638,225

Changes for the week this year were increases of $2,854,100 in loans, and $633,000 in specie; decreases of $888,700 in deposits, $64,000 in circulation, $3,756,500 in legal tenders, and $2,901,825 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$80,192,500
1896	.....	.....	70,358,400
Bank of England	$192,416,980	.....	192,416,980
1896	243,988,020	.....	243,988,020
Bank of France	383,127,500	$246,756,000	629,883,500
1896	390,351,108	248,498,857	638,849,965
Imp. Bank of Germany	.....	.....	226,965,000
1896	.....	.....	238,055,000
Austro-Hungarian Bank	153,298,000	63,350,000	216,648,000
1896	123,985,000	64,060,000	188,045,000
Netherlands Bank	13,164,000	34,343,000	47,507,000
1896	15,248,000	34,243,000	49,491,000
Belgian National Bank	.....	.....	20,731,000
1896	.....	.....	19,809,000
Bank of Spain	42,642,000	40,022,000	82,664,000
1896	53,717,000	50,550,000	104,267,000
Bank of Italy	59,780,000	11,985,000	71,765,000
1895	59,860,000	9,950,000	69,810,000
Imp. Bank of Russia	518,355,000	.....	518,355,000
1895	395,035,000	.....	395,635,000

The return for the Associated Banks of New York is of date February 13th; all the others are of February 18th, except the Bank of Italy, December 10th, and the Bank of Russia, December 16th-28th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England and the Bank of Russia report gold only. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

Shipments of silver from London to the East for the year up to February 4th are reported by Messrs. Pixley & Abell's circular as below:

	1896.	1897.	Changes.	
India	£320,998	£521,500	I.	£200,502
China	47,900	14,550	D.	33,350
The Straits	55,200	14,400	D.	40,800
Totals	£424,098	£550,450	I.	£126,352

Arrivals for the week this year were £133,000 in bar silver from New York, £24,000 from the River Plate, and £17,000 from the West Indies; also £38,000 in Mexican dollars from New York; a total of £212,000. Shipments for the week were £120,400 in bar silver to India.

Indian exchange shows a slight reduction, the average price at which council bills are placed in London having been 15·28d. per rupee. The demand for money in India still continues, but remittances seemed to be held back to some extent, and the applications for bills were much lighter.

Prices of Foreign Coins.

The following are the latest market quotations fo the leading foreign coins:

	Bid.	Asked.
Mexican dollars	$0.50¾	$0.51½
Peruvian sols and Chilean pesos	.45¾	.47
Victoria sovereigns	4.85	4.90
Twenty francs	3.85	3.90
Twenty marks	4.73	4.80
Spanish 25 pesetas	4.78	4.85

Other Metals.

Copper.—The market has been very dull and hardly any business has been doing. The European markets have been disturbed by war rumors, and the opening of the week showed a considerable decline in copper, but later on the market recovered. That put buyers here on their guard, which was the more easily accomplished as the consumptive demand still leaves a great deal to be desired. Producers, however, remain firm, and do not show anxiety to sell, and only at considerably higher prices would fair quantities of copper come out. Lake copper is still firmly held at 11⅞@12c., but electrolytic copper has not been salable above 11⅜c. for cakes or ingots, though 11⅝c. is reported bid for wire bars; 11⅛@11⅜c. for cathodes. Even at these prices only a limited business was done. Casting copper remains scarce at 11¼@11⅝c.

The following figures give the production (in tons of 2,240 lbs.) of copper in the United States, and also by the chief foreign mines, and the exports from the United States, for January:

	January, 1896.	January, 1897.
Production fine copper, long tons:		
Reporting mines in U. S.	14,872	16,937
Pyrites and outside sources U. S.	1,200	700
Reporting foreign mines	6,834	6,595
Total production, long tons	22,906	24,232
Exports from U. S., fine copper	8,168	9,651

The total United States production was 17,637 tons, showing an increase this year of 2,565 tons, or 17%. The exports continue to show an increase, the gain for the month being 1,483 tons, or 18·1% over last year.

In London the market has been much disturbed, and the week opened considerably lower. £50 7s. 6d. @£50 10s. for g. m. b. spot, and £50 15s.@£50 17s 6d. for three months prompt. When the political sky cleared somewhat, the market improved under covering of bear sales; later on a substantial support was given, and values close at the highest, £51 7s. 6d.@£51 10s. for spot, and £51 15s.@£51 17s 6d. for three months prompt. The consumptive demand in Europe is said to be rather irregular for the moment, and buyers are holding back somewhat. There still appears to be a great deal of second-hand fine copper offering at lower prices than it is obtainable from first hands. We quote for refined and manufactured: English tough, £53 5s.@£53 10s.; best selected, £54@£54 10s.; strong sheets, £61@61 10s.; India sheets, £57@£57 10s.; yellow metal, 5d.

Tin.—The market has been rather quiet and not much business has been done. Quotations here closely follow those recorded on the other side, and consumers act with great caution. We quote spot and February 13·40c., and March to June 13·45c.

The exports of tin from the Straits Settlement for the years 1894, 1895 and 1896 are reported as follows, in tons of 2,240 lbs.:

	1894.	1895.	1896.
To United States	7,359	12,973	15,077
To Great Britain	25,930	23,233	18,631
To European Continent	13,180	11,626	13,313
To China	2,700	2,656	3,963
To India	1,955	2,018	2,155
Total tons	51,124	52,506	53,139

The shipments to the United States direct show a marked increase.

The London market has shown only slight variations. A small decline was recorded at the opening, which was due to the political disturbance, but was afterward regained, and prices close the same as last week, £60 15s.@£60 17s. 6d. for spot and £61 7s. 6d.@£61 10s. for three months prompt.

Lead.—The activity reported during the last few weeks continues, and one consumer after the other is entering the market, fearing that a delay in covering their wants will prove expensive. It appears to be fairly well settled that a change in the duty will be made when the extra session of Congress convenes, but we are as yet at too early a stage to predict what the changes will be. Large transactions have taken place at very firm rates, and we have to quote February and March lead at 3·30@3·32½c., New York. The Western markets also have been very active at 3·05@3·07½c.

Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong but quiet. The latest sales of Missouri brands were on a basis of 3·05@3·07½c. and desilverized corroding at 3·12½c. It looks as if we had about seen the highest water mark.

In London Spanish lead is quoted £11 12s. 6d.@£11 13s. 9d., and English lead 5s. higher.

Spelter is rather irregular, and the consumptive demand remains rather poor. Some sales are reported as having been made here in New York at 4c., and in the West on the basis of from 3·75@3·80c. St. Louis. The foreign market is weakish at £17 10s.@£17 12s. 6d. for good ordinaries, and specials 2s. 6d more.

Antimony remains flat; Cookson's, at 7¼c.; Hallett's, 6⅞c.@7c.; and Japanese, 6⅝c.@6¾c.

Nickel.—Business is fair and prices show an upward tendency, but without quotable change as yet. We quote for ton lots 33@36c. per lb., with 37@39c. for smaller orders. London prices are steady at 14@15d. for large orders and 15@16½d. for small lots. The New York price is about on a parity with London, allowance being made for the duty

of 6c. per lb. here. The Paris quotation is 4 fr. per kilo, equivalent to about 36c. per. lb.

Platinum.—There is a strong feeling and prices are firm at $14.50@$15.50 per oz., New York. London quotations are 57s. 6d.@59s. per oz.

For chemical ware, best hammered metal, Messrs. Eimer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams, for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes, 52c., 54c. and 56c. per gram. Wire and foil are 49c., 50c. and 51c. per gram. The current retail price for crucibles is 60c. per gram.

Quicksilver.—The New York quotation has been raised slightly from $37.75 to $38 per flask. The London price is £6 17s. 6d., with £6 16s. 3d. named from second hands.

Quicksilver receipts at San Francisco in January were 1,264 flasks, as against 2,112 in 1896 and 2,028 in 1895. Exports by sea for the month were: British Columbia, 4; Mexico, 302; Central America, 120; New Zealand, 10; total 436 flasks, comparing with 2,909 flasks in 1896. The large total in 1896 embraced 1,500 flasks to New York and 1,000 flasks to Hong Kong, to which there were no shipments this year.

The Minor Metals.—Quotations for these metals are given in the table below, the prices being for New York delivery:

Aluminum:	
No. 1, 98% pure ingots for re-melting, per lb	37@42c.
No. 2, 94% pure, " " "	31@34c.
Ingots from scrap, per lb	30c.
Rolled sheets, per lb	46c. up.
Aluminum-nickel casting metal, per lb	35@40c.
Bismuth, per lb	$1.30@$1.80
Phosphorus, per lb	50@55c.
Platinum, per oz	$14.50@$15 50
Tungsten, pure powder, per lb	70c.
Tungstic acid, per lb	45c.
Ferro-tungsten, 60% in ton lots, per lb	60c.

Variations in price depend chiefly upon the size of the orders.

Average Monthly Prices of Metals

In New York, for the years 1897 and 1896; in cents per pound.

Month.	Copper.		Tin.		Lead.		Spelter.	
	1897.	1896.	1897.	1896.	1897.	1896.	1897.	1896.
Jan.	11·75	9·87	13·44	13 02	3·04	3 08	3·91	3·75
Feb.	.....	10·64	.....	13 44	.....	3·19	.....	4·03
March	.....	11·03	.....	13·30	.....	3·14	.....	4 29
April	.....	10·98	.....	13·34	.....	3·07	.....	4 07
May.	.....	11·15	.....	13·54	.....	3·03	.....	3·98
June	.....	11·67	.....	13·59	.....	3·03	.....	4 10
July.	.....	11·40	.....	13·63	.....	2 96	.....	3·97
August	.....	10 98	.....	13 49	.....	2·73	.....	3 76
Sept.	.....	10·66	.....	13·15	.....	2·77	.....	3·60
October	.....	10 66	.....	12·94	.....	2·89	.....	3·72
Nov.	.....	11·23	.....	13·09	.....	2·96	.....	3 99
Dec.	.....	11·28	.....	12·96	.....	3 04	.....	4·14
Year:	.....	10·88	.....	13·29	.....	2·98	.....	3·94

Imports and Exports of Metals.

New York.*	Week, Feb. 18.		Year, 1897.	
	Expts.	Impts.	Expts.	Impts.
Aluminum ..... lbs.	.....	.....	.....	.....
Antimony ore....short tons	.....	.....	.....	53
" regulus. . casks	.....	.....	.....	95
Brass, old.....short tons.	16	.....	33	.....
Copper, fine .....long tons	1,071	.....	8,340	144
" matte .... " "	496	.....	2,198	.....
" ore..... " "	.....	.....	.....	.....
" sulphate.. " "	9	.....	1,047	.....
Iron ore..... " "	.....	.....	.....	.....
" pigs, bars, rods..... " "	15	559	1,654	1,126
Iron pyrites..... " "	.....	.....	.....	2,670
" sulphate..... " "	.....	.....	.....	.....
Ferro-manganese " "	30	.....	374	52
Ferro-silicon..... " "	.....	.....	.....	.....
Manganese ore.. " "	.....	.....	.....	60
Spiegeleisen..... " "	.....	58	.....	246
Lead bullion..... " "	950	1,190	3,487	5,271
" pigs and bars " "	.....	.....	.....	.....
Magnolia metal... " "	.....	.....	57	.....
Nickel..... " "	.....	.....	18	5
Steel, billets, rods. " "	27	1,069	2,141	3,183
Tin..... " "	46	250	293	1,322
Tin dross..... " "	24	.....	28	.....
Tin and black plates, boxes.	.....	18,145	.....	111,920
Zinc dross.....long tons	.....	.....	22	.....
Zinc (spelter).....long tons	.....	.....	349	720

*Metal Exchange Reports.

Philadelphia.††	Imports.	
	Week, Feb. 12.	Year, 1897.
Antimony, casks.	.....	2,700
Copper ore, long tons.	.....	.....
Ferro-manganese, long tons.	.....	.....
Ferro-silicon.....	.....	.....
Iron ore, long tons	9,555	25,955
" pig " "	.....	.....
" pyrites, long tons.	.....	.....
" and steel scrap, long tons....	.....	.....
Manganese ore, long tons.....	.....	.....
Spiegeleisen " "	.....	.....
Tin ..... " "	.....	100
Tin and black plates, boxes.....	.....	1,768

†† From New York Metal Exchange Reports.

Baltimore.**	Week, Feb. 18.		Year, 1897.	
	Exp.	Imp.	Exp.	Imp.
Bismuth metal, cases.....	.....	.....	.....	.....
Chrome ore..... long tons	.....	.....	.....	.....
Copper, fine..... " "	145	.....	4,939	.....
" matte..... " "	.....	.....	.....	.....
" sulphate.. " "	30	.....	737	.....
Iron ore ..... " "	.....	5,560	.....	20,032
" pigs, bars, ingots, blooms. " "	.....	.....	80	858
Iron oxide..... bags	.....	.....	.....	.....
" pyrites.....long tons	.....	.....	.....	.....
Ferro-manganese " "	211	.....	739	.....
Ferro-silicon..... " "	.....	.....	.....	23
Lead..... " "	.....	.....	.....	.....
Limestone.....short "	.....	.....	.....	.....
Manganese metal,long "	.....	.....	.....	1,610
Spiegeleisen ..... " "	.....	.....	.....	260
Steel..... " "	.....	.....	110	197
Steel wire, bundles.....	.....	1,260	34	2,673
Tin, long tons.....	.....	36	18	194
Tin and black plates, boxes	.....	.....	.....	4,517
Zinc (spelter) long tons....	2	.....	2	.....

**From our special correspondent.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Feb. 19.

Heavy Chemicals.—Conditions remain dull in this market, there being little animation in what business is being done. Inquiries are still being received, but they result in but little real business. We quote: Caustic soda, 60%, $2.22½@$2.42½; 70·74@76%, $2.12½@$2.22½ per 100 lbs. Alkali, 58%, 70@75c. for 50-ton lots and over, and 80@90c. for smaller quantities; 48%, $1@$1.20 for jobbing lots. Caustic soda ash, 48°, $1.50@$1.70. Bleaching powder, prime brands, $1.75@$1.87½; Continental, $1.62½@$1.75 per 100 lbs. Bicarb. soda, English, 1·75@2c. per lb.; American, bulk, $1.50@$3.50 per 100 lbs., according to make. Sal-soda, English, 62½@67½c.; American, 55@65c. (in barrels), 80c. (in kegs) per 100 lbs. Hyposulphite of soda, 1·65@1·85c. in casks; 1·75@2c. in kegs.

Acids.—Reports from various dealers indicate that the acid business at the present time is quite bright, and that prices are firmly held and pretty freely obtained. The past week has been quite satisfactory in a business way for most sellers. For current delivery orders have been better lately. Quotations per 100 lbs. in New York and vicinity in lots of 50 carboys or over are as follows: Acetic acid, commercial No. 8 (in barrels), $1.40@$1.50; in carboys, $1.50@$1 65; redistilled, 28%, in bbls., $1.70@$1.80; in carboys, $1.90@$2.05; muriatic acid, 18°, 75@85c.; 20°, 85@95c.; 22°, $1.15@$1.25, according to make and quantity. Nitric acid, 36°, $3.50@$4; 40°, $4@$4.50; 42°, $4.50@$5.50. Oxalic acid, $7.25 ex-dock and $7.50 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66°, 85c.@$1 in carload lots, 10@15c. higher for small quantities. Chamber acid, $6@$6.50 per ton at factory. Blue vitriol, $4 and higher, according to grade and order.

Brimstone.—The demand for this article for present consumption is rather slack, and conditions have become quiet. The demand is better for spring shipments, and quite a number of such contracts have been made. A vessel just in port with 1,000 tons of best unmixed seconds has its cargo nearly all contracted for; the remainder will be obtainable at $21 per ton. Spot quotations from another source are given as $20 for the same grade, and $19 for thirds. For shipment the same prices are quoted.

Fertilizing Chemicals.—During the past week this market was rather quiet, there having been just a little buying. Although quiet, prices held firm. We quote:

Sulphate of ammonia, gas liquor, $2.20 for shipment, and $2.25 for spot; bone, $2.05@$2.10 per 100 lbs. Dried blood, high grade Western, $1.80 per unit New York; f. o. b. Chicago, $1.50@$1.52½ per unit; low grade, fine ground, Western, $1.45@$1.50 f. o. b. Chicago. Azotine, $1.70@$1.75 basis New York. Concentrated phosphate (30% available phosphoric acid), 57½c. per unit. Acid phosphate, 13%@15%, av. P_2O_5, 54@65c. per unit at sellers' works in bulk. Dissolved bone black, 17%@18% P_2O_5, 85c. per unit. Acidulated fish scrap, $10, and dried scrap $19.50@$20, f. o. b. fish factory. Tankage, high grade, $14@$14.25 per ton; concentrated, $1.35 per unit, f. o. b. Chicago; New York, $19@$20; low grade, $18@$19. Bone tankage $19@$20; ground bone, $21@$23. Bonemeal, $20@$22 50.

Sulphate of Potash: 90%, New York and Boston, $1.96½; Philadelphia, Baltimore and Norfolk, $1.98; Southern ports, $2.

Double Manure-Salt: 1·01c., basis of 48% chlorate high grade (basis 90%), 1·99½@2·03c., in bulk, 24@36% per unit O. P., 36½@38c.

Muriate of Potash: We quote: 1·75c. at New York and Boston, 1·76½c. Philadelphia, Baltimore and Norfolk, and 1·81½c. Charleston, Savannah, Wilmington and New Orleans, for 80@85% basis of 80%, in lots of 50 tons and upward.

Chlorate of Potash.—Conditions remain firm; the price is maintained as previously quoted, which is 8@8½c. according to quantity.

Kainit.—Invoice weights, as taken at port of shipment, per ton of 2,240 lbs., testing 12·4% actual potash, equivalent to 23% sulphate of potash, $8.55. Actual weights, ex-vessel at port of New York per ton of 2,240 lbs. (testing as before), $8.80.

Nitrate of Soda.—This article continues very strong, and is still quoted 1·90c. for spot and 1·87½c. to arrive (near by). For shipment 1·80c. is asked.

Valparaiso, Chile. Jan. 2.

(Special Report of Jackson Brothers.)

Nitrate of Soda.—There is no interest shown to operate in this produce on the part of buyers. Producers, with a few exceptions, abstain from offering any nitrate for sale at present prices. Sales have been limited to 260,000 quintals at 5s. 8½d. for immediate delivery, 5s. 8d. for March, and for 96%, 5s. 10d. The price of 5s. 8½d., with 17s. freight stands in 7s. 2¾d. per cwt., net cost, and freight without purchasing commission. Sales for the fortnight amounted to 259,200 metric quintals.

MINING STOCKS.

Complete quotations will be found on pages 202 and 203 of mining stocks listed and dealt in at:

New York.	Colorado Springs.	Paris, France.
Boston.	Duluth, Minn.	Mexico.
Philadelphia.	Helena, Mont.	Shanghai, China.
Baltimore.	Salt Lake, Utah.	Valparaiso, Chile.
Pittsburg.	San Francisco.	London, England.
Cleveland, page 178.	Denver, Colo.	British Columbia.

NEW YORK, Friday Evening, Feb. 19.

Speculation in mining stocks this week was not active, and in many cases prices declined.

At the Consolidated Stock and Petroleum Exchange, Consolidated California & Virginia sold down to $1.90 from $2.35 a week ago. There were sales this week of $2,500 in Comstock Tunnel bonds at 5%. Ophir sold at 90c. on February 15th, and declined to 80c. on February 18th, with sales of 400 shares. This company has levied an assessment of 25c. per share, delinquent March 10th.

The California stocks were quiet. Standard Consolidated Mining Company has declared a dividend of 10c. per share payable March 23d. The stock sold at $1 70@$1.75 this week, and transactions amounted to 200 shares.

The Utah stocks were dull with the exception of Horn Silver, of which 500 shares were sold at $1.80.

The Ontario Silver Mining Company, of Utah, has declared a dividend, No. 211, of 10c. per share ($15,000), payable March 1st to stockholders of record February 25th.

The Daly Mining Company has also declared a dividend, No. 77, of 25c. per share ($37,500), payable March 1st to stockholders of record February 24th. The last dividend paid by this company was in August, 1896, and amounted to 25c. per share.

The Homestake Mining Company, of South Dakota, announces its 223d dividend of 25c., which will be paid to stockholders on February 25th.

The New York Mining Exchange reported a decrease in its sales this week, due, we are informed, to the lack of stocks for sale. Purchases are said to be made in the Western market of the cheaper stocks, while the higher class securities are bought principally in Boston. There were dealings in Red Mountain, Russell, and Golden San Juan, and prices advanced several points.

It has been said that 1,000 shares of Gold Coin—a gold stock dealt in at Boston—have been sold to a French syndicate. We learn from the transfer agency of the Gold Coin Mines Company, that its stock is held by some 500 people and that it cannot substantiate this report. There are, however, a few French stockholders, but they made their purchases about a year ago, and as the company pays dividends, it is thought that holders of stock are satisfied. Furthermore, we are informed that the Gold Coin Mines Company has not authorized the New York Mining Exchange to list its stock, although transactions have been reported made here.

A rumor was also circulated that the Elkton Consolidated, a Cripple Creek property, has been dealt in for French account, but nothing definite can be ascertained.

Boston. Feb 18.

(From Our Special Correspondent.)

The market shows a little better tone, but dullness has been the rule, and with two or three exceptions prices have not materially advanced. The volume of business has been comparatively light, the copper stocks sympathizing with the inactivity of the general market.

Arnold declined from $3 to $2¾; and later sold at $3⅛. Atlantic went off from $22 to $20½ and back to $22½, but the dealings were in small lots mainly. Calumet & Hecla holds its own well, around $357, and closed $355. Centennial has been more active at an advance from $5¾ to $6½. Franklin holds unchanged at $11, awaiting developments on Franklin Junior. Kearsarge has worked up from $17⅛ to to $19¼, in view of a probable dividend. Osceola was also stronger, gaining from $31 to $33, closing $32⅝. Quincy is very steady at $116@$116¼, and the scrip $104¼ to $106, with a fairly active market for both. Tamarack was in brisk demand early in the week, advancing from $115 to $119 and closing $118¼. Tamarack, Jr., gained one point to $18, with no special activity. Wolverine was in better demand, advancing from $9⅛ to $10⅛, but closing $10 asked.

Boston & Montana has, as usual, absorbed the lion's share of attention, and after going off from $108 to $106½, rallied sharply to $111, but closed $110⅝. Butte & Boston sold off to $10⅛ on Saturday last and up to $14 this week, which latter price includes the second installment of $2.50 per share

out of the $10 assessment. Old Dominion, after declining from $17¾ to $16½, rallied to $18¼, but closed $17⅝ per share.

Gold stocks did not offer much inducement to buyers. Cripple Creek has appeared at 11c., the first sale this month, a decline from 17½c. January 30th. Gold Coin is $¼ higher at $3¾, but inactive. Merced firmer at $9. Pioneer almost nominal at $5, the sales being few and small in amount. Santa Ysabel is growing more in favor, with an advance from $12½ to $14¼, and a fairly good amount of transactions.

In the afternoon there was some weakening of prices and a very restricted business.

Cleveland. Feb. 9.

(From Our Special Correspondent.)

The general tendency of the mining stock market in this city has been downward during the past week. It is claimed by some of the brokers that probable investors fear the result of the disruption of the steel rail and bar iron pools, and this feeling is said to be responsible for the condition of the market. Jackson fell $5, Republic $4 and Aurora $3. Because of this feeling among investors but few sales were recorded during the week.

Salt Lake City. Feb. 13.

(Special Report of James A. Pollock.)

This has been a notable week in the mining stock market for sensational advances and dividend declarations and payments. Stocks were in strong demand and recorded heavy purchases for investment account. The record of dividends maintained by Utah mining companies is little less than phenominal, and if paid in any other mining state would be heralded from one end of the country to the other. Under some slight selling movement of a bear nature, but without any real legitimate reason, Ajax sold down again. At the close inquiry was brisk, however, and the indications seem good for much better prices. Anchor is again shipping ore, but the stock was not strong. Bullion-Beck surprised even its most enthusiastic supporters by declaring a dividend of $100,000, or $1 per share, for February. Such a payment was made possible by the very heavy shipments of high-grade ore coming from the mines. The stock made rapid advances and closed above the $8-mark ex-dividend. Bogan remained inactive, while Buckeye did some business at better than last week's figures. A marked inquiry for Daly occurred during the latter portion of the week, and prices were materially stronger. Dalton was slightly stronger and recorded fairly heavy business. Dalton & Lark was lower. Dexter did considerable business at the previous week's figures. Four Aces did not recover its lost strength to any marked degree. Geyser-Marion has issued its new stock. Only light business was done in the stock. Little Pittsburg will probably soon be assessed to provide working capital. Quotations were slightly stronger at the close. The February dividend of $25,000 on Mercur has been declared payable on the usual date. Orders for the stock were heavy, and sales occurred up near the option price before the dividend books closed. Mammoth did some business at the closing figures of last week. Northern Light was stronger. Ontario was but slightly offered, with the demand active at advancing figures. Swansea recovered very materially on account of rumors of improved conditions. There is no doubt but that the stock has been, and is still being, manipulated. South Swansea will pay its regular 5c. dividend on the 20th. There was also a marked improvement in this stock. Sunshine did little during the week and was hardly as strong at the close. Utah will resume dividend payments on Saturday, paying its old 2c. per share. The stock was much stronger, and, on investment buying, will probably go higher.

San Francisco. Feb. 13.

(From Our Special Correspondent.)

The market opened quietly this week and continued rather dull, though prices were maintained better than might have been expected. This was probably due to the fact that there is really very little stock of the leading companies afloat. On Friday there was a slight upward turn, but at the close to-day prices were rather weak.

Some closing quotations are: Consolidated California & Virginia, $2.05@$2.10; Hale & Norcross, $1.20@$1.30; Confidence, $1@$1.05; Challar, 9c@94c.; Ophir, 90c.; Best & Belcher, 67@69c.; Savage, 47c. There was some dealing in Standard Consolidated at $1.60@1.65.

The firmness in Hale & Norcross shares is due to a contest for the control of the mine, which will culminate at the annual meeting of the company, to be held Wednesday, March 10th. Jeremiah Lynch, who has controlled and managed the mine for a year past, is making a strong fight to retain his position as president of the company, and George W. Grayson has within a few days put himself at the head of a strong opposition party, and is making a vigorous attempt to get the control away from the Lynch people. The Grayson party are said to hold a large block of Hale & Norcross stock, and are in favor of more prospecting work being done in the mine.

Mining assessments delinquent in February amount to $52,500, of which California mines call for $19,500 and Nevada mines $33,000.

A block of 24,000 shares of the capital stock of the Isis Mining Company, owning the property formerly known as the Lacrouts mine, at Silver City, Nev., was sold by sheriff recently to satisfy a judgment obtained by C. B. Benham against the owner, Dazet. The stock was sold to Benham, who was the only bidder, for 2c. per share.

In the annual report of the San Francisco Clearing House, Manager Charles Sleeper states that the clearings for the year 1896 were $683,229,599, and for 1895 $692,079,240, a decrease of $9,849,641. The balances in 1896 were 13.2% of the clearings, and amounted to $90,491,491, and were paid in United States gold coin. The average daily balance for 1896 was $297,669, and for 1895 $322,268, a decrease of $24,599.

British Columbia.

(From Our Special Correspondent.)

ROSSLAND, Feb. 11.

The first indications of the spring activity of which great expectations have been formed, have made their appearance. One of the climatical characteristics of this country is snow, and this feature rather than severe frost is the principal reminder that the winter season is present. The Provincial Legislature is in session and a bill will be passed for the incorporation of Rossland. Much interest is taken in the policy of the Provincial government in respect to mining legislation. A 10% payment on stock into the treasury of all mining companies incorporated is advocated. If this should be enacted many of the companies which have been more or less over-capitalized will be eliminated from the mining market. As yet the policy of the government on this particular is not known. Whether the free and easy incorporation of mining companies is to be continued as heretofore or a wholesome change made the next few weeks will determine.

The management of the new shipping mines, such as the Columbia & Kootenay, the Iron Mask, Jumbo, Cliff and Red Mountain, are taking especial pains to ship only the very best ore.

The total shipments from January 1st to February 7th reached 5,085 tons. The Columbia & Kootenay makes a record of 230 tons and the Iron Mask 244. The dividend payers have been reinforced by the Rambler & Cariboo Consolidated, a silver mine in the Slocan country. The amount is $20,000.

London. Feb. 3.

(From Our Special Correspondent.)

The South African section of the London Mining Stock Market has shown signs of strength lately. The chief interest has centered round Chartered, the shares of which have been in great demand by speculators. For some reason or other the presence of Mr. Rhodes in England is considered a bull point, though it is not very clear why it should be. It is the tendency now to expect nothing but good to the British South African Company from the Parliamentary Commission which is to commence its sittings shortly.

The only other feature of the South African section has been the success of the debenture issue by the East Rand Company. The French shareholders in this company were expected to object to the proposed issue, but they have since agreed to the terms, and East Rand shares and the shares of other companies connected with it have all advanced.

The West Australian section has been occupied almost entirely with negotiations in connection with the Lady Hampton rig. It will be remembered that the bears got caught when this company was floated, and the riggers refused to arrange terms with them. An appeal was brought against the allotment before the Stock Exchange committee, but the committee could not move in the matter. The bears have had to pay as much as £30 for each £1 share, and a few of them will no doubt be declared defaulters.

Shares in copper companies have been advancing with the increase of the price of the metal, the most noticeable advance being in Anaconda.

Paris. Feb. 7.

(From Our Special Correspondent.)

Speculation has been quite active during the week last ended, and there have been large dealings in different stocks.

The copper shares have been active, with many small fluctuations and a general tendency upward. Rio Tintos were strong, and Thersis showed a fair gain, due to rumors of a large dividend for the year just closed.

Huanchaca (silver) has declined again on reports of further trouble with the water, which is cutting off the lower levels.

The lead and zinc shares were strong, but with little movement. The Russian metallurgical group continues in demand.

Apparently the rise in the metallurgical stocks has ceased for the present. There were no increases and also, it may be said, no decreases of any importance. Nickel has been stationary through the week.

The African gold stocks continue dull and depressed. They are regarded on all sides with suspicion just now. The movement for reforms in management is gaining many adherents among stockholders in France.

We have not yet the figures for the coal production of all France, but the following is the statement for the two chief producing districts, the Nord and the Pas-de-Calais, in metric tons.

	1895.	1896.
Nord	5,041,499	5,206,853
Pas-de-Calais	11,097,807	11,851,083
Total	16,139,306	17,057,936

The increase of 918,630 tons is a very considerable one. In the Nord the Compagnie d'Anzin is the great producer, reporting 2,906,000 tons last year; Aniche was second with 910,600 tons, and Escarpelle third, with 574,840 tons. In the Pas-de-Calais the leading producer was the Compagnie de Lens, with 2,538,108 tons; but four others produced over 1,000,000 tons each—Bethune, Bruay, Courrieres and Noeux.

The total production of coke in 1896 was 1,141,202 tons, of which there was made in the Nord 730,299 tons, and in the Pas-de-Calais 410,903 tons. Anzin and Lens are the two chief coke-makers.

The imports of iron ore into France in 1896 amounted to a total of 1,862,065 tons, an increase of 210,696 tons, or 12·7% over 1895. The greater part, nearly all in fact, of these imports were from Germany and Belgium. The exports of ores varied but little, having been 233,075 tons in 1896 and 236,923 tons in 1895.

AZOTE.

MEETINGS.

United Verde Copper Mining Company, annual meeting at the office in New York, on February 23d, at 12 m.

Bullion-Beck & Champion Mining Company, annual meeting at 405 McCornick Bank Building, Salt Lake City, Utah, on March 1st, at 3 p. m.

MISCELLANEOUS DIVIDENDS.

Colorado Fuel and Iron Company, dividend of 4% on the preferred stock, payable February 20th at the New York office.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dinq.	Sale.	Am
Andes Silver	Nev...	43	Mar. 8	Mar. 31	.10
Beaver Creek	Mont.	....	Jan. 17	Feb. 23	.02
Best & Belcher	Nev...	61	Mar. 2	Mar. 23	.25
Bogan Silver	Utah.	4	Feb. 18	" 8	.05
Bullion	Nev...	49	" 18	" 11	.10
Central Eureka	Cal....	4	Jan. 30	Feb. 23	.03
*Central G. & S.	"	8	Mar. 2	Mar. 23	.02½
*Channel Hend	"	6	" 12	Apr. 3	.02
Confidence	"	1	Feb. 27	Mar. 20	.10
Eureka Con.	"	7	" 26	" 20	.05
Eureka Con.	Nev....	14	" 23	" 15	.25
Gray Eagle	Cal....	....	Jan. 30	Feb. 23	.05
Horseshoe Bar Con	"	6	Feb. 6	" 27	.20
Jones	Utah..	....	" 16	Mar. 11	.00¼
Julia Con	Nev...	28	" 26	" 19	.05
Jupiter Gravel	Cal....	1	Mar. 3	" 23	1.00
Larkin	"	....	Feb. 15	" 15	.05
Lucky Bill	Utah..		" 23	" 13	.01½
Mountaineer	Cal .	19	" 11	Feb. 27	.04
*Occidental Con	Nev...	26	Mar. 16	Apr. 6	.10
*Ophir Silver	"	70	" 10	Mar. 30	.25
*Reward Gold	Cal....	....	" 11	.....	.02
Ridge Copper	Mich..	....	Feb. 16	.....	1.00
Sevier	Utah..	....	" 11	Feb. 27	.05
Silver King	Ariz...	16	Mar. 1	Mar. 29	.25
*Soulsby Con. G.	Cal....	6	" 6	" 23	.05
Teresa	Mex...	17	Feb. 5	Feb. 24	10
Troy	Alaska	....	Mar. 11	.....	.05
Utah Con	Nev....	24	Feb. 17	Mar. 8	.05
Vanderbilt	Idaho..	...	Mar. 5	" 21	.05

*New assessment.

DIVIDENDS.

NAME OF COMPANY.	Current Dividends. Date.	Current Dividends. Am't.	Paid since Jan. 1, 1897.	Total to date.
Aetna Con. Q	Mar. 20	$10,000	$50,000	$90,000
*Alaska-Mexican	.....	.....	18,000	191,031
*Alaska-Treadwell	.....	.....	75,000	3,100,000
*Anchoria-Leland	Feb. 15	$6,000	12,000	42,000
Arizona Copper	.....	48,000	48,000	.....
Atlantic Copper	Feb. 10	40,000	40,000	740,000
Boston & Montana	" 26	450,000	450,000	5,375,000
*Bullion Beck	" 29	100,000	100,000	2,067,000
Calumet & Hecla	" 10	1,500,000	1,500,000	48,350,000
*Centennial Eureka	" —	30,000	60 000	1,920,000
*Coronas	.....	.....	3,000	8,000
Daly	Mar. 1	87,500	37,500	2,925,000
*Della S	.....	.....	10,000	60,000
*Elkton Con	Feb. 20	20,000	45,000	211,960
*Florence	" 1	3,606	7,212	121,712
*Galena	.....	.....	5,000	71,000
Gold Coin	Feb. 1	20,000	15,000	120,000
*Hecla Con	" 25	15,000	30,000	2,175,000
Highland	" 20	20,000	20,000	3,244,918
*Homestake	" 25	31,250	62,500	6,150,000
Hope	" 1	10,000	10,000	662,252
Iowa Gold	" 15	5,000	5,000	60,000
*Last Chance	.....	.....	20,000	40,000
*Le Roi	.....	.....	50,000	300,000
*Mercur	Feb. 20	25,000	50,000	625,000
*Mont. Ore Pur. Co	.....	.....	40,000	520,000
*Morning Star	Feb. —	9,600	24,000	474,000
*Napa Con	.....	.....	10,000	820,000
*N. Y. & Honduras Rosario	Feb. 15	15,000	30,000	705,000
*Ontario	Mar. 1	15,000	30,000	13,385,000
Osceola	Feb. 1	50,000	50,000	2,122,500
*Portland	" 15	30,000	60,000	923,000
Quincy	" 15	400,000	400,000	9,070,000
Reco	" 15	100,000	100,000	137,500
*Sacramento	" 20	5,000	10,000	17,000
*Silver King	" —	37,500	75,000	937,500
*South Swansea	" 20	7,500	15,000	22,460
*Swansea	.....	.....	5,000	26,500
Utah	Feb. —	2,000	2,000	175,000
*Victor	" 15	20,000	40,000	745,000
Totals	.....	$3,062,956	$3,639,212	$108,730,323

* January dividend paid.

STOCK QUOTATIONS.

NEW YORK.*

NAME OF COMPANY.	Location.	Par val.	Feb. 13. H.	Feb. 13. L.	Feb. 15. H.	Feb. 15. L.	Feb. 16. H.	Feb. 16. L.	Feb. 17. H.	Feb. 17. L.	Feb. 18 H.	Feb. 18 L.	Feb. 19. H.	Feb. 19. L.	Sales
Alamo	Colo	1									.56¼	.55	.68	.67	1,600
Anaconda	"	1	.75	.74½											
Anchoria-Lel'd	"	1													
Annetta			.17⅞	.17⅝	.18	.17	17⅞	.17⅝	.18	.17	.18	.17	.17	16	12,500
Arg'ntum-Jun	Mont.	5	.37		.38	.37½	.35				.36⅛		.38		1,200
Belcher	Nev.	100													
Best & Belcher	"	100					.75		.70						400
Bodie	Cal.	100					.80								200
Breece	Colo.	25							.13						500
Brunswick	"	1	.16		.15				.14				.17		1,800
Chrysolite	Colo.	50													
Comst.T. Bonds	Nev.	100									.05		.05		2,500
Con. Cal. & Va.	"	100			2.10		2.25								300
Con. Imperial	"	100													
Creede & C. C	Colo.	1	.06		.06		.06½								1,600
Cripple Cr. Con.	"	1	12		.12		.12		.11						5,500
Crescent	Utah	25													
Cresus	Colo.	1			.02										500
Crown Point	Nev.	100													
Dalton & Lark	Utah	1													
Deadwood	S. Dak	25													
Eagle	Colo.	1													
Elkton	"	1	1.39								1.39		1.40		500
Fanny B	"	1	.08												1,000
Favorite	Colo.	1	.06		.06¾										2,000
Garfield Grouse	"	1	.08												1,000
Geyser	Utah	5													
Gold Cliff	Colo.	1	.36¼		.35¾	.34¾	.35¾	.36	.36						2,000
Gold Coin	"	5													
Gold Explor	"	1	.10¼												1,500
Gold & Globe	"	1	.11¾												500
Golden Fleece	"	1													
Gold San Juan	"				.13	.12	.14	.13	.15	.13	.15⅛	.13	.16		14,000
Hale & Norcross	Nev.	100													
Homestake	S. Dak	100													
Horn Silver	Utah	25							1.80						500
Iron Silver	Colo.	20													
Isabella	"	1									.45		.48		600
Jack Pot	"	1									.06¼	.6			300
Japan	Cal.	10													
Jefferson	Colo.	1			.12										500
King & Pemb.	Ont	10	.22				.27	.23			.26				1,973
Lacrosse	Colo.	10													
Leadville Con	"	10													
Little Chief	"	50													
Mercur	Utah	25													
Mexican	Nev.	100							.40						300
Mollie Gibson	Colo	5													
Mono	Cal	100					.30								600
Moul on	Mont.	5													
Mt. Rosa	"	1	.11						.10		.10¼				1,100
New Haven	Colo.	1			.03				.03		.03⅛		.03		4,000
Old Dominion	Ariz.	25													
Ontario	Utah	100													
Ophir	Nev	100			90						.80				400
People's	Colo	1					.06								100
Pharmacist	"	1	.12		.13		.13								500
Phœnix Con	Ariz.	100													
Portland	Colo.	1			1.10										100
Potosi	Nev.	100													
Quicksilver	Cal	100													
" pref.	"	100													
Red Bird	Colo.	1	.11		.11¾	.10	.12¼	.12	.13	.12¾	.12				11,000
Red Mount	"	5	.26¾	.26	.25	.26¼	.29	.27	.28¼	.26¾	.29⅜	.27½	.28½	.25	18,700
Russell	N. C	1	.24½	.23½	.27	.25	.27	.26¾	.27	.26	.27½	.27	.27	.25	16,500
Savage	Nev	100													
Sierra Nevada	"	100							.40						300
Sm. Hopes Con.	Colo.	20					.52								200
Specimen	"	1			.06										1,000
Standard Con	Cal.	100	1.68				1.75	1.70							300
Syndicate	"	100													
Union	Colo.														
Union Con	Nev.	100									.35				300
Utah Con	"	100													
Victor	Colo.	5													
Work	"	1	.08½												100
Yellow Jacket	Nev.	100													

*Official quotations Consolidated Exch. Stock Exch. and New York Mining Exch. Sales are those made on the three boards. Total shares sold, 110,175.

INDUSTRIAL, COAL AND COAL RAILROAD.*

NAME OF COMPANY.	Par value.	Feb. 13. H.	Feb. 13. L.	Feb. 15. H.	Feb. 15. L.	Feb. 16. H.	Feb. 16. L.	Feb. 17. H.	Feb. 17. L.	Feb 18 H.	Feb 18 L.	Feb. 19. H.	Feb. 19. L.	Sales
Balt. & Ohio	100	15⅛		15½	15	15⅛		15⅜						910
Ches. & Ohio	100	17	16¾	16¾		17		17		17	16¾	17	16¾	2,540
Col.C.& I.Dev	100													
Col. Fuel & I.	100	23		22	20½	22½	22	21⅛		21		20¼		1,950
Col.,H.V.&Tol	100	8¼	7	8	7	8	7	7¼	5⅜	5⅛	4⅛	5	4⅛	13,355
do. pref.	100													
Col. & H.Coal	100													
Del. & Hud. C	100	107	106⅜	107¼	106¾	107⅜	.07	108¼	107¼	107¼	106¾	107¾	107	6,313
Del., L. & W.	50	152	15 ⅜	152¼	152	152⅜		153¾	152⅛	153		153⅜	152⅜	3,400
General Elec.	100	34¾	34½	34		34⅝	34½	35½	34⅜	35	34⅝	34½	34	11,525
Lake Erie&W	100	16				16								700
do. pref.	100			68										89
Morris&Essex	100			165				165¾	164					88
Nat'l Lead	100			22¼	22	23¾	21¾	22⅜	22	22⅛				2,642
do. pref.	100			89⅜	88¾	89		90⅛	89⅜	91		91⅛	91	884
N. J. Central	100	98¼	97¼	98½	98½	99⅜	99	98⅜	98⅝	98⅜	96⅝	97¼	95⅝	11,925
N. Y.,L.E.&W	100													
do. pref.	100													
N.Y.,Ont.&W.	100			14⅜	14⅛	14⅞	14⅜	14⅝				14⅜	14¼	1,900
N.Y.,Susq.&W	100							9		9		9		700
do. pref.	100	26¼	25¾	25¼		25⅝	25¼			25	24¼			2,200
Norfolk & W.	50													
do. pref.	50							17						200
Phila. & Read.	50	24⅞	24¼	24⅜	23¾	25¼	24⅝	25⅝	24⅝	24½	23¾	24⅜	24	39,550
Tenn. C. & I.	100	28¼	26⅜	27⅜	26⅜	27¾	26⅛	27⅛	27	27	26¼	27⅛	26⅜	24,441
do. pref.	100													
Wheel. & L. E	100			2¼	2	2		2	1¾	1¾	1½	1⅜	1	5,330
do. pref.	100													

* Official quotations N. Y. Stock Exchange. Total shares sold, 130,292.

SAN FRANCISCO, CAL.*

NAME OF COMPANY.	Location.	Par. value.	Feb. 11.	Feb. 12.	Feb. 13.	Feb. 15.	Feb. 16	Feb 17.
Alta	Nev.	100		.05	05	.04	04	.04
Belcher	"	100	.28	.24	25	.24	.20	.22
Belle Isle	"	100						
Best & Belcher	"	100	.69	.72	.67	.71	.61	.61
Challar	"	100	.88	.94	.89	.90	.84	.86
Con. California & Virginia	"	100	2.05	2.20	2.05	2.15	1.90	1.90
Crown Point	"	100	.28	.28	.26	.23	.20	.21
Gould & Curry	"	100	.45	.47	.45	.45	.40	.40
Hale & Norcross	"	100	1.05	1.25	1.20	1.20	1.05	1.05
Mexican	"	100	.41	.43	.40	.39	.35	.34
Ophir	Nev.	100	.91	.94	.90	.93	.81	.80
Potosi	"	100	.45	.42	.45	.41	.41	.41
Savage	"	100	.45	.46	.45	.45	.40	.38
Sierra Nevada	"	100	.38	.29	.35	.37	.37	.34
Standard	Cal.	100	1.60		1.55	1.65	1.65	1.65
Union Con	Nev.	100	.40	.38	.38	.38	.33	.33
Utah	"	100		.03			.05	.06
Yellow Jacket	"	100	.28	.26	.27	.25	.21	.26

*Official telegraphic quotations, San Francisco Stock Exchange.

BALTIMORE, MD.* Week ending Feb. 12.

NAME OF COMPANY.	Location.	Par value	Bid.	Ask.	NAME OF COMPANY.	Location.	Par value.	Bid.	Ask.
Balt. M. & S.	N. C.	5			Howard C.&C	Md.	5		
Conrad Hill	"	10			Lake Chrome	"	5		
Con. Coal	Md.	100	35		Ore Knob	"	10		

BOSTON. MASS.*

NAME OF COMPANY.	Location.	Par val.	Feb 12. H.	Feb 12. L.	Feb. 13. H.	Feb. 13. L.	Feb. 15. H.	Feb. 15. L.	Feb. 16. H.	Feb. 16. L.	Feb. 17. H.	Feb. 17. L.	Feb. 18. H.	Feb. 18. L.	Sales.
Allouez	Mich.	25													
Arnold	"	25					3 00	2.75	3.00	2 88	3.00		3.13		1,240
Atlantic	"	25					21.50	20.50			22 50	21 50	22.00		87
Bost. & C. C	Colo.	1											4.11		300
Bost. & Mont.	Mont.	25			108	107	109	106½	110¼	109	111	110¾	111	110¾	8,939
Butte & Bost	"	25			11 00	10.50	13.88	12 63	14.13	13 88	14 00	13.50	13.63	13 25	10,812
Cal. & Hecla	Mich.	25					357		357		357		355		51
Centennial	"	25			5 75		6 00	5.75	6 50	6.00	6.63	6 50	6.50	6 25	4,648
Dominion Coal	N. S.	100			8 75		8 50		8 50						205
" pref.	"	100							82.00						5
Franklin	Mich.	25							11 00		11.00				200
Gold Coin	Colo.	1							3.63		3 63		3.75	3.63	2,203
Illinois Steel	Ill.	100			31.00	29.00	32.25	30 00	34.25	32.75	34.50	34.00	33.50	33.00	2,211
Kearsarge	Mich.	25			17.50		18.00	17 50	19.00	18.50	19.25	19.00			1,685
Lake Sup. Iron.	"	25													
Merced	Cal.	15			8 50		8 50	8 00	8.50	8.38			9.00		270
Minnesota (Ir.)	Minn.	100													
Napa	Cal.	7													
National	Mich.	25													
Old Dominion	Ariz	2			18.00	17.13	17.50	16.50	18.25	18 00	18.25	17.75	17.63	17.38	2,555
Osceola	Mich.	25			31.00		31.50		32.38	32.00	33.00	32.25	32 88	32 50	968
Pioneer	Cal.	10			5 00		5.00		5.25				5 25	5.00	460
Pontiac	Mich.	25													
Quincy	"	25			116		116½		117	116¾	116¾	116	116¾	116½	423
do. scrip	"								103		105¾	104½	106		558
Santa Rosa	Cal.	10													
San. Ysabel (G.)	"	5					12.50		13 00	12 88	14.25	13.75	14.00		670
Tamarack	Mich	25			116½	115	118¼	115	119		119½	119	118¾	118	228
Tamarack, Jr.	"	25			17.00		17.38		18 13	18.00			18.00		271
Tecumseh	"	25													
Westingh.E.&M	Pa.	50											24.50		50
do. pref.	"	50					50.75	50.00							81
do. scrip	"														
Wolverine	Mich.	25			9 75	9.50	10.00	9.00	10 00		10.13	10.00	10.00		1,739

*Official quotations Boston Stock Exchange. ‡Ex-dividend. Total sales, 40,859.

COLORADO SPRINGS, COLO.

NAME OF COMPANY.	Par val	Feb. 8. H.	Feb. 8. L.	Feb. 9. H.	Feb. 9. L.	Feb. 10. H.	Feb. 10. L.	Feb. 11. H.	Feb. 11. L.	Feb. 12 H.	Feb. 12 L.	Feb. 13. H.	Feb. 13. L.	Sales.
Ajax	$1													
Alamo	1					.05¼	.05¼			.05⅜				11,000
Am'ric'n C	1													
Anaconda	5	.75	.74	.75½	.74¼	.75⅜	.72	.74	.70⅜	.70⅝	.63¾	.60	.55	115,250
Aola	1													
Arg'ntumJ	2	.36¼		.38	.36⅛	.39¼	.38⅛	.40	.39⅜	.39⅜	.38⅛	.38½		13,500
Bangkok	1													
Bankers	1													
Banner	1											.02⅜		1,000
Ben Har	1													
Blue Bell	1													
Bob Lee	1							.01						5,000
Bost. & C.C.	1													
Bucknorn	1													
Colo.C.&M.	1													
Columbine	1													
Copper M	1													
Cr. & C. C.	1			.05⅛				.05⅛		.05¾	.05⅝			18,000
C. C. Con.	1					.12		.11¾		.11⅝		.11¼	.11	6,000
Cr.Cr.Exp.	1											.10		500
Cresus	1													
Dante	1													
Des Moines	1	.02¼												2,000
Enterprise	1													
Fanny R	1													
Favorite	1									.09½	.08½			13,500
Franklin	1			.006										10,000
Garfield-G.	1													
Gold. Age	1													
Gold. E'g'e	1													
Gold Fi'ce.	1					.50						.49		1,000
Gold & Gl.	1													
Gold King	1													
Gold Stand	1													
Gould	1													
Grotte	1													
Henrietta	1													
Humboldt	1													
Ida May	1													
Ingham,C.	⅛													
Iron Clad	1					.17⅜		.17⅜				.17½		3,500
Isabella	1	.50	.47⅜	.48¼	.47	.48¼	.47¾	.48⅛	.48	.47⅜	.47½	.47	.46⅜	88,700
do.stan.p.	1	.48¾	.46¼	.47¾	.47	.47⅝				.46⅛	.46⅝	.46¼	.46⅛	20,300
Jack Pot	1	.07⅛		.07⅜	.07⅜	.07⅛		.07⅛		.07⅜				22,000
Jefferson	1													
Keystone	1													
Ladessa	1													
L'nc'ln B'y	1													
LottieGlb	1													
Marion	1													
Matoa	1			.08⅜										
Mollie G	5	.45	.44½	44		.43⅜	.41	.08¼	.40⅜	.40½	.38	.37½	.38	2,500
Monarch	1													8,400
Mt. Rosa	1	.10¾	10½			.10	.09¾	.10				.10¼		7,000
Mutual	1													
Nugget	1													
Ophir	1													
Oriole	1			.02½		.02½								4,000
Orphan B	1													
Pappoose	1													
Pharmacist	1	.13	.12⅝	.13⅝	.13			.13	.12⅞	.12⅝	.12⅜			14,800
Portland	1	1.15	1.10	1.11	1.09	1.10		1.10		1.10		1.10		15,500
Princess	1													
Reno	1													
Sacrameto	1													
Silver St	1													
Specimen	1									.07		06⅞		3,000
Sq'w Mt.T.	1													
Temonj	1													
Trachyte	1	02⅜		.02⅜				.02⅜						3,000
Union	1	.26¾		.26¼		.26⅞		.26¼						3,100
Virginia M.	1													
Work	1	.08⅜		.08⅜	.08¼	.08⅜	.08⅜	.08⅜		.08⅜		.08¼		23,500

Official quotations. Total shares sold listed, 416,50; unlisted, 1,002,100

CLEVELAND.

NAME OF COMPANY.	Par value.	Feb. 16. Bid.	Feb. 16. Ask.	NAME OF COMPANY.	Par value.	Feb. 16. Bid.	Feb. 16. Ask.
Aurora	$25		$5	Lake Superior	$25		$32
Chandler	25	$38	41	Minnesota	100		
Cleveland-Cliffs Iron	100		45	Pittsburg & L'ke Angeline	25	$75	
ackson	25		70	Republic	25	9	11

BRITISH COLUMBIA. Week ending Feb. 13.

NAME.	Selling price.	NAME	Selling price.	NAME.	Selling price.
Bound'y Creek:		**Trail C'k** (con.):		**Trail C'k** (con.):	
Old Iron Sides	$0.12	California	$0.15	Le Roi	$7.50
C'p McKenney:		Colonna	.25	Lily May	.18
Cariboo M.& S.Co.	.45	Commander	.18	Little Darling	
Ainsworth & Nelson Dis.:		Crown Point	.50	Mabel	.10
		Deer Park	.20	Mayflower	.15
Delile	.12	Dundee	.05	Monita	.20
Colville Res.:		Enterprise	.20	Monte Cristo	.15
Fidelity G.& C.Co.	.10	Evening Star	.10	Morning Star	.07⅛
Joe T. Gold M. Co.	.08	Georgia	.15	Nest Egg	.10
Idaho District:		Gertrude	.07	Northern Bell	.15
Daisy Group	.10	Good Hope	.07	O. K	.30
Oro Pinar Placer	.12½	Great Western	.12	Orphan Bell	.08
Slocan Dis.:		Hattie Brown	.10	Ottawa	
Idler	.07½	Helen	.08	Palo Alto	.09
Noble Five Con	.64	High Ore	.07	Phœnix	
Slocan Star	2.35	Homestake	.17	Poorman	.09
Wonderful Group	.10	Imperial	.05	Red Eagle	.15
Trail Creek:		Iron Mask	.50	Red Mt. View	.12
Alberta	.12	Iron Coat	.12	Rossland Red Mt.	
Big Chief	.10	Ivanhoe	.10	St. Elmo	.10
Big Three	.12½	Josie	.50	Silver Bell	.20
Blue Bird	.10	Jumbo	.57	Silverine	.08¾
Butte Gold-Copper	.08	Josie Mac	.08	So. Cross & Wolver. C.	.20
British Col. Gold King	.10	Kohinor	.08	St. Paul	.10
Br. Can. Gold Fields	.35	Kootenay Col.	.30	West Le Roi	
Caledonia Con	.12	Kootenay, London	.10	White Bear	

LONDON. Feb. 5.

NAME OF COMPANY.	Country.	Product.	Capital stock.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
N'th Americans:				£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska-Mexican	Alaska	Gold	£200,000	1 0 0	0 4.8	Jan., 1897	1 11 3	1 13 9
Alaska-Treadwell	"	"	1,000,000	5 0 0	1 6	" "	4 17 6	5 2 6
De Lamar	Idaho	Gold & silver	400,000	1 0 0	1 0	Nov., 1896	6 6	7 6
Hall Mines	BritishCol	Cop.&Silver	250,000	1 0 0			1 7 6	1 10 0
Montana	Montana	Gold&silver	660,000	1 0 0	0 3	June, 1896	4 0	5 0
Palmarejo	Mexico	" "	800,000	1 0 0			1 0	1 6
Pinos Altos	"	" "	100,000	1 0 0			1 3	3 9
Plumas-Eureka	California	Gold	281,250	2 0 0	0 6	Oct., 1896	2 6	7 6
Richmond	Nevada	G'ld,sil.,le'd	270,000	5 0 0	1 0	Dec., "	10 0	15 0
Sierra Buttes	California	Gold	245,000	2 0 0	0 6	Apr., "	2 6	7 6
Springdale	Colorado	"	260,000	4 0	0 2	Sept., 1894	3	9
S'th Americans:								
Colomb. Hydra'lic	Colombia	Gold	75,000	1 0 0	1 0	July, 1895	7 6	10 0
Frontino & Bolivia	"	"	140,000	1 0 0	1 3	Dec., 1896	1 8 9	1 11 3
St. John del Rey	Brazil	"	562,000	1 0 0	xn	Jan., 1895	13 9	16 3
Copper:								
Anaconda	Montana	Cop. & Sil.	6,000,000	5 0 0	5 1¾	Nov., 1896	6 11 3	6 13 9
Cape Copper	So. Africa	Copper	600,000	2 0 0	3 0	Dec., "	2 10 0	2 15 0
Copiapo	Chile	"	200,000	2 0 0	1 6	" "	2 2 6	2 7 6
Mason & Barry	Portugal	Cop.& sulph	1,050,000	4 0 0	£1 cp	Dec. "	2 10 0	2 15 0
Rio Tinto	Spain	Copper	3,250,000	10 0 0	18 0	Nov., "	27 10 0	27 15 0
Tharsis	"	Sulpr &cop'r	1,250,000	2 0 0	4 0	April, "	6 15 0	7 0 0
Australians:								
Bayley's Reward	W.Au't'lia	Gold	480,000	1 0 0	0 4	Dec., 1894	2 9	3 3
†Broken Hill Prop.	N.S.Wales	Silver	960,000	1 0 0	1 0	" 1896	2 10 0	2 2 6
†Mt. Morgan Gold	Qu'ns'and	Gold	1,000,000	1 0 0	0 6	Jan., 1897	3 10 0	3 15 0
South Africans:								
British S.Africa Co	So. Africa	Lands &Ex.	2,500,000	1 0 0	xn.	Jan "	2 8 9	2 11 3
City & Suburban	Transvaal	Gold	85,000	4 0 0	2 0	" "	3 15 0	4 0 0
Crown Reef	"	"	180,000	1 0 0	12 0	Oct., 1896	10 2 6	10 7 6
De Beers	CapeCol'y	Diamonds	3,950,000	5 0 0	£1	Jan., 1897	29 5 0	29 7 6
Ferreira	Transvaal	Gold	90,000	1 0 0	3 0	" "	17 0 0	17 10 0
Geldenhuis Est	"	"	200,000	1 0 0	2 6	Oct., 1896	2 17 6	3 0 0
Henry Nourse	Witw'sr'd	"	125,000	1 0 0	6 0	Jan ,1897	5 17 6	6 2 6
Heriots (New)	"	"	115,000	1 0 0	4 0	" "	7 5 0	7 10 0
Jagersfontein	Orange F.S	Diamonds	1,000,000	5 0 0	6 0	Sept., 1896	8 17 6	9 2 6
Langlaagte Estate	Transvaal	Gold	500,000	1 0 0	3 0	Jan. 1897	4 5 0	4 10 0
Primrose (New)	"	"	300,000	1 0 0	xrts.	Sept.,1896	3 15 0	3 17 6
Robinson	"	"	2,750,000	5 0 0	5 0	Jan., 1897	7 17 6	18 2 6
Sheba	"	"	85,000	1 0 0	1 0	Dec., 1895	2 0 0	2 2 6
Sim. & Jack (New)	"	"	5,000,000	5 0 0			3 17 6	4 2 6
‡Wemmer	Witw'sr'd	"	55,000	1 0 0	15 0	Jan., 1897	6 17 6	17 2 6

† Dividend pending. ‡ Ex-dividend.

PARIS. Week ending Feb. 11.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.	Fr	Fr	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	100.00	1 990 0	2,060.00
" " Firminy	"	" "	3,000,000	500	85.00	1,820.0	1,800.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	810.0	815.00
" " la Marine	"	" "	20,000,000	500	37.50	1,110.00	1,095 00
" " Longwy	"	" "		500	35.00	903.0	898.00
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	25.0	92 50	130.00
Anzin	France	Coal			170.00	4,920.00	4,920.00
Boleo	Lower Cal.	Copper		500	65.00	1,525.0	1,495.00
Brianski	Russia	Coal & Iron				1,360.0	1,380.00
Bruay	France	Coal	3,000,000	400	700.00	26,0 0.00	28,000.00
Callao	Venezuela	Gold	32,200,000	125		8.75	4 00
Cape Copper	S. Africa	Copper		50	1.50	64.00	69.00
Champ d'Or	"	Gold		25		25 00	24.50
Courrieres	France	Coal	600,000	300	160.00	1,670.00	1,600.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	785.00	782.00
Dombrowa	Russia	Coal		500		535.00	545.00
Dynamite Centrale	France	Explosives		500	25.00	535.00	520.00
Fraser River	Brit. Col'mb	Gold				36.50	44.25
Huanchaca	Bolivia	Silver		125	5.00	72.50	65.25
Huta-Bankowa	Russia	Iron & steel				3,525.00	3,465.00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	110.00	111.00
Laurium	Greece	Zinc & lead	16,300,000	500	40.00	685.00	680.00
Lautaro	Chile	Nitrates		125		154.00	153 00
Malfidano	Italy	Zinc	12,500,000	500	40 00	1,070.00	1,060.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	12.00	690.00	680.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	775.00	780.00
Nickel	N.Caledo'nia	Nickel	14,720,000	500	30.00	215.00	2 5. 0
Paccha-Jazpampa	Chile	Nitrates				15.00	24 50
Penarroya	Spain	Coal, etc.		500	52.50	1,675.00	1,690.00
Rebecca	Colo'do,U.S.	Gold			7.50	7.00	6.50
Rio Tinto	Spain	Copper	81,250,000	250	27.65	687.00	690.50
Robinson	S. Africa	Gold		125	12.50	218.00	219.00
Saint Elie	Fr. Guiana	"	4,000,000	25		18.0	18.00
Salines de l'Est	France	Salt		500	27.00	340.00	320.00
Sels Gem.de la Rus. Mer	Russia	" etc				640.00	613.00
Tharsis	Spain	Copper		50	8.75	175.00	179 00
Vielle Montagne	Belgium	Zinc	9,000,000	80	20.00	535.00	527.50

MEXICO. Week ending Feb. 4.

NAME OF COMPANY.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Amistad y Concordia	Hidalgo	9,600	$0.7		$25	$30
Angustias	Guanajuato	2,400	10.00		500	490
Arevalo y Anexas	Hidalgo		10.00		360	300
Asturiana y Anexas	Zacatecas	2,500	10.00		200	210
Bartolome de Medina	Hidalgo	2,000	3.50		150	100
Carmen	"	1,100	7.75		350	400
Castellana y SanRam	Tepic	2,448	3.00		100	80
Cerro Colorado	Chihuahua	15,000		$1.00	10	10
Cinco Senores y An	Guanajuato	2,000	25.00		980	990
Concepcion y Anexas	S. Luis Potosi	2,700			180	100
El Oro	Guanajuato	500			40	60
Guadalupe	"	10,000	2.00		200	180
Luz de Maravillas	Hidalgo	1,100			150	160
Pabellon	"	1,000	27.89		180	200
Purisima de los Com.	Zacatecas	2,400			10	5
Real del Monte	Hidalgo	2,554	10.00		1,100	1,080
Rosario y Anexas	Durango	4,800			50	60
San Francisco	Hidalgo	2,000	3.00		275	290
S. Ped. Chalchihuites	"	1,000	2.00		100	80
San Rafael y Anexas	"	1,200	20.00		950	980
do. free stock.	"	1,200	14.00		450	440
Sta. Maria de la Paz	S. Luis Potosi	2,400			325	420
Soledad	Hidalgo	960	7.50		400	425
Sorpresa	"	960	5.00		250	300
Trinidad	Guanajuato	2,000			50	60
Tlauzingo	Puebla	2,400			30	40
Union	Hidalgo	2,000	8.00		300	350
Zaragoza	"	1,100			15	15
Zomelahuacan (gold)	Vera Cruz	5,000			100	100
Zona Min. de Pozos	Guanajuato	2,400		1.50	15	40

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

VALPARAISO, CHILE.* Jan. 2.

NAME OF COMPANY.	Capital.	Share value Nominal	Share value Paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat	$3,300,000	$100	$100	0½ per cent.	$30	$30½	$30
Caracoles	315,000	100	100	5 "	20	30	30
Descub. de Huantajaya	1,000,000	100	100	3 "			
Huanchaca de Bolivia	8,000,000	25	25	4 "	42	43	42
Oruro	800,000	200	200		340	350	330
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.			
Todos Santos	2,000,000	100	100	1 "	16	17	16
Nitrate Cos:							
Agua Santa	3,000,000	50	50	4 "	150	151	150
Antofagasta	2,000,000	200	200	5 "	150	151	150
Union	3,000,000	200	500		51	52	50

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SHANGHAI, CHINA.* Jan. 28.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad	China	45,000	$5	$5	Oct., 1894	$0.25	Taels 1.90
Punjom Mg. Co., Ltd	"	60,000	4	3.75			" 9.12
do. pref	"	30,000	1	1			" 2.55
RaubA'lian G.Mg. Co.	"	200,000	£1	18s. 10d.	Dec., 1893	0.21	" 6 57
Sheridan Con.Mg. Co.	Colorado,U.S	20,000	Taels 100	Taels 100			" 4.00

* Special Report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

DENVER, COLO.* Feb. 8 to Feb. 13

NAME OF COMPANY.†	Par val	Feb 8. B.	Feb 8. A.	Feb. 9. B.	Feb. 9. A.	Feb. 10. B.	Feb. 10. A.	Feb. 11. B.	Feb. 11. A.	Feb. 12. B.	Feb. 12. A.	Feb. 13. B.	Feb. 13. A.	Sales.
L'd Mines														
Anaconda	$5	.76	.77	.74¼	.75	.74	.75	.70	.70⅝	.59	.60	.53⅝	.54	67,100
Bangkok	1	.03	.05	.02	.04		.03⅞		.03½	.03	.03½	.02⅜	.03¼	1,000
Bankers	1	.09⅝		.09⅝	.10¼		.10½	.09¾	.10¼	.09⅝	10	.09⅝	11¼	1,500
Big Six	1	.03½		.03½		.03⅝	.10	.03¾		.09⅝		.07¾	.08	1,500
Gold Stand.	1	.04¼	.04½	.04½	.04⅝	.04⅝	.05	.04½	.04¾	.04⅝		.04⅝	.04¾	1,000
Insley	1	.05	.05¾	.04¼	.05¾	.04½	.05	.03	.05¼	.03¾	.05	.04½	.05	1,000
Iron Clad	1	.07	.07½	.06⅜	.07½	.06	.07¾	.06¼	.07½	.06¾	.06⅞	.06	.06⅝	2,000
Isabella	1	.45¼	.47⅞	.43	.48¼	.47¾	.48¼	.48¼	.48¾	.47¾	.48		.47¼	11,200
Mollie Gib	5	.44	.47	.38	.47	.39				.38	.39	.36¼	.39¾	200
Pharmacist	1													
List. "P."														
Addie C	1	.006	.008	.007	.007½							.005	.007½	1,000
Aola	1	.01⅜	.01⅝	.01⅜		.01⅜	.01⅝	.01¾		.01⅜	.01⅝	.01⅜	.01⅝	1,500
Big Johnny	1													
Blue Jay	1	.001⅜	.002	.001⅛	.002¼	.001⅜	.002¼	.002	.002⅜	.002	.002¼	.002¼		5,000
Cannon Ball	1	.004	.004¼	.004	.004⅜	0 4	.005	.004	.005	.004	.004¼	.003⅝	.004	3,000
Defender	1	.005⅛	.006	.006		.005⅛	.0.6⅝	.005⅜	.006	.0 5⅝	.006	0 5¼	.006	13,000
Dictator	1	.001⅜	.002¼	.001⅜	.002	.002	.002¼	.001⅜	.002¼	.002	.002¼	0.2	.002¼	12,000
Dixie	1	.001	.001	0 ¾	001		.001¼	.00⅜	.001		.001¼		.001¼	2,000
Eclipse	1	.002¼	.003¼	.002¼	.003	.002¼	.004	.002½	.003¼	.002½	.004	.002¼	.003¼	2,500
Forest R.	1	.001	.002	.001¼	.002	.001		.001¼	.001⅜	.001¼		.001		2,000
Gene Field	1	.002	.002¼	.002	.002¼	.002	.002½	.002	.002½	.001⅜	.002¼	.002	.002⅜	16,500
Geo. Wash	1													
Gold Field	1	.002¼	.003	.002¾	.003	.002	.003	.0.2	.003	.002½	.002¾	.002	.002¾	2,000
Gold. Hope	1													
Gold Queen	1	.001	.001¼	.001	.001¼	.001	.001¼	.001	.001¼	.001	.001¼	.001¼	.001¼	15,000
Gregory	1													
Hecla	1													
Henrietta	1	.006½	.006¾	.006¼	.0.6¾			.006¼	.007	.006	.0 8	.005	.0 8	2,000
Illinois	1	.008½	.008¾	0 8¾	.009¼	.009	.0.9¼	.008¼	.010	.008¼	.008¾	.008¾	.008¾	21,000
Internat'l	1	.001¾	.0.1¼	.001¼	.001¾	.001½	.002	.001¼	.001¼	.001½	.0.2	.001¼	.002	41,000
Justine	1	.001¾	.002¼	.001	.001¼	.001¾		.001½		.001¾		.001½		5,000
Linc. Boy	1		.0 1		.001				.001	.00⅜	.00¾	.00⅜	.001	2,000
Millionaire		.001¼	.002	.001	.002	.001		.001	.002	.001¾	.002	.001¾	.002	1,000
Old Gregor	1		.05		.05									1,000
Orient	1			.001	.001¼		.001¼							4,000
Q'n Victoria	1	.004	.004¼	.003½	.004	.003¼	.004	.003½	.004	.003	.004	.003	.003½	9,000
Reno	1													
Royal Age	1	.003⅜	004	.003⅜	.003⅜	.003¾	.004	.003⅜	.004	.003	.004	.0 3	.003¾	33,000
Senator	1	.002	.002¾	.002	.003	.002¼	.002½	.002	.003	.002	.003	.002¼	.003	15,000
Sentinel	1	.002	.002¼	.002	.002¼	.002	.003	.002¼	.003	.002¼	.002	.002¼	.002¼	28,000
Unity	1	.002	.002¼		.003						.003¼			3,000
Uni. Act.														
Alamo	1	.05¾	.05¾	.05¾	.05⅝	.01¾	.05¾	.05¼	.0 ¾	.04¾				13,000
Arcadia	1	.004¾	.005	.003½	.007	.004½		.003	.007¾					1,000
Arg. J	1	.37	.40	.38	.40	.38½		.39	.40	.39			.39½	300
Bob Lee	1	.01	.01¾	.01	.0.0¾			.01		.009½		.0 9	.01	6,000
Chimb'razo	1													
C. C. & M.	1	.02¾	.03	.02¾	.03	.02¾	.03	.02¾	.03	.02¾	.03	.02¾	.03¼	1,000
Goldsmith	1	.005	.006¾		.006	.005	.006	.004¾	.005¾	.004	0 5½	.0 4¾	.005	29,000
C K. & N.	1													
Cr. & C. C.	1	.04½	.05	.05¾	.06					.05	.06		.06	5,000
Elkton	1													
Enterprise	1													
Goldstone	1	.0 6¾	.01	006	.01	.006		.006		.007	.008	.007¾	.0 8¾	1,000
Jack Pot	1	.07¾	.07¾	.06¾	.07¾	.07	.07¾			.07¾	.07¾	.07¾	.07¾	2,000
Lit. Dorritt	1	.001¾	.002¾	.001¾	.002			.002			.001¾			1,000
Mt. Beauty	1	.02¾	.03¾	.02¾	.03	.02				.02¾	.03	.02¾	.02¾	1,000
Old Gold	1	.006¾	.007	.0 6¾	.006¾	.06¾	.007	.005¾	.006¾	.006¾	.006¾	.0 6¾	.006½	53,000
Portland	1	1 10	1.17¾	1 07	1.14							1.0	1 17	200
Santa Fe	1	.001	.001¾		.001¾			.001¼		.001	.001¾	.001	.001¾	11,000
Tamarack	1	.02¾	.03	.03	.03¾	.03	.03¾	.03	.03¾	.03¾	.03¾	.03¼	.03¾	138,000
Union Gold	1													
Wh of For	1													
Va. M	1	.03¾	.04¼	.03¾	.01¾	.03⅝	.04¾	.04		.04¼	.004¾	.04	.04¾	2,000
Wire Gold	1					.009	.015	.01	.01¾	.01	.01½			25,000

* Official quotations Colorado Mining Stock Exchange.
Shares sold, listed, 329,500; unlisted, 309,500. Total, 639,000.

SALT LAKE CITY, UTAH.* Week ending Feb. 13.

STOCKS.†	Par value.	Bid.	Asked.	Actual selling price.	STOCKS †	Par value	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.80	$0.82½	$0.80	Herschel		$0 06	$0 10	
Alliance	1	.15	.35		Horn Silver	$25	1.45	2.00	
Am. Nat. Gas		.01	.03		Little Pittsburg		.03	.03½	$0.03
Anchor	20	1.15	1 35	1.25	Lucky Bill		.17½	.23¾	20
Annie			.10		Malvern		21	23	
Bogan	1	.05	.10		Mammoth	25	2.25	2 33	2.30
Brick Con		35	.50		Mercur	25	7.00	7 25	7.20
Bullion Beck & C.	10	8 25	9.00	8.50	Morgan	125	.17½	.22½	18¼
Buckeye		14½	.15¾	.15	Northern Light		93	.95	95
Centen'l Eureka	50	65.00			Ontario	100	10.00	11.00	10.50
Dalton	5	.02¼	.02¾	.02¾	Overland		.20	.40	
Dalton & Lark		20	.25		Rover	10	.35	.40	.40
Daly	20	5.50	6.00	6.00	Silver King	20	17.00	18.00	17.25
Daly West	20	7.90	8.05	8.00	Sioux Con	10	90	1.00	
Dexter		1.00	1.05	1 00	Sunshine	10	.70	.85	.75
Eagle	10	.03½	06	.04½	Swansea		2.00	2.10	2.05
Four Aces		.12½	.15	.13	So. Swansea		1.65	1.75	1 70
Galena	10	1.20	1.25	1.25	Tetro	1	.03½	.07½	
Geyser-Marion		1.40	1.50	1.50	Utah Con	1	50	.75	

* Special Report of James A. Pollock. † All the companies are located in Utah.

PHILADELPHIA PA.*

NAME OF COMPANY.	L'cation.	Par Val'e	Feb. 11. H.	Feb. 11. L.	Feb. 12. H.	Feb. 12. L.	Feb. 13. H.	Feb. 13. L.	Feb. 15. H.	Feb. 15. L.	Feb. 16. H.	Feb. 16. L.	Feb. 17 H.	Feb. 17 L.	Sales
Cambria Iron	Pa.		40.25	40.00	40 00		40.00		40.00	39 75	40.00		40 00		622
Choc.&Gulf.Ctfs	I.T.	50			8.00								7 88	7.75	156
Hunt & Br.Top	Pa.	50									19.00				24
" pref	"	50	48 00		48.00				48 00						132
Lehigh C. & N.	"	50	39 50	39.00	40 25	39.50	40.00	39 50	40 00	39.75	40 00	39 25	40 00	39.50	183
Lehigh Valley	"	50	25 88	25.75	25.75	25.50	25.63	25.50	25 75	25.63	25.50	25 38	25.00	22.50	8,146
Li'leschuylkill	"	50													
Penna. R. R.	"	50	52.13		52.13		52.25		52.13	52 00	52.13		52.13	52.00	1,351
Pa.SaltMfg.Co.	"	50													
Penna. Steel	"														
UnitedGas Im	Can.		73.50	72.50	72.50	72.00	72.50		72.50	72.00	73.00		73.00		712
Welsb.of Can	Pa.		2 00		2.00				2.00						590
Welsb Com'l	"														
" Com pr	"								65 00						10
" Light	"				43 50		43.00		41 25	40.00					436
West Coal	"														

* Official quotations Philadelphia Stock Exchange. Total sales, 12,162.

HELENA, MONT.* Week ending Jan. 21.

NAME OF COMPANY.	Location.	Company's office.	Par value.	Bid.	Asked.	Shares sold.	Price.
Am.Dev.&M.Co.	Mont. & Idaho	Butte, Mont.	$1	$0.90	$1.00	4,000	.90- 95
Bald Butte	L. & Cl'ke Co.	Helena "	1		2 25		
Bi-Metallic	Granite "	St. Louis, Mo.	5		1.75		
Combination	" "	" "	10		.35		
Granite Mt	" "	" "					
Helena & Victor	Missoula "	Helena, Mont.	5				
High Ore	Jefferson "	Butte "					
Iron Mountain	Missou a "	Helena "	10	.37½	40	1,600	.40- .41
Judge	Meagher "	" "			.10		
Merrill (Gold)	Jefferson "	Butte "	1				
Ontario	DeerLodge "	Helena "	1				
Yellowstone	Meagher "	" "	5		.12½		

* Special Report of Samuel K. Davis. Total shares sold, 5,600.

PITTSBURG, PA.* Week ending Feb. 15.

NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	Selling price.	NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	Selling price.
COAL:						NAT. GAS:					
Mansfield	Pa.	50				Allegheny	Pa.	100			
N.Y. & C. Gas C.	"	50				Chartiers Val	"	100			
MINING:						Manufacturers	"	100			
Ent'prise	Colo.	5				Peoples' Nat. Gas	"	50			
Lustre	Mex.	10				Peoples' Pipeage	"	25	13¾	15	
Silverton	Colo.	10				Pennsylvania	"	50			
MISCELLANEOUS:						Philadelphia	"	50	16	17½	
Carborundum	Pa.	100				Wheeling	W.V.	50	18		

* Official quotations Pittsburg Stock Exchange.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Adams, s. l. c.	Colo.	$1,500,000	150,000	$10	*				$693,500	Oct...	1895	.04
2	Ætna Cons., q.	Cal.	500,000	100,000	5	*				80,000	Dec.	1896	.10
3	Alaska-Mexican, g.	Alask	1,000,000	200,000	5					191,031	Jan.	1897	.10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*				3,100,000	Jan.	1897	.37½
5	Anaconda Copper.	Mont.	30,000,000	1,200,000	25					2,250,000	Nov.	1896	1.25
6	Anchoria-Leland, g.	Colo.	600,000	600,000	1	*				36,000	Jan.	1897	.01
7	Argentum Juniata, g.s.l	Colo.	2,600,000	1,300,000	2	*				39,000	July.	1895	.03
8	Aspen Mg. & S., s. l.	Colo.	2,000,000	200,000	10	*				900,000	July.	1894	.10
9	Atlantic, c.	Mich.	1,000,000	40,000	25					740,000	Feb.	1897	1.00
10	Aurora, i.	Mich.	2,500,000	100,000	25	*				700,000	April.	1896	.50
11	Bald Butte	Mont.	250,000	250,000	1	*				470,000	June.	1896	.03
12	Bangkok-Cora Bell, s. l.	Colo.	600,000	600,000	1					107,510	July.	1896	.01
13	Bates Hunter, g. s.	Colo.	1,000,000	1,000,000	1	*				67,500	Dec.	1891	.00¾
14	Belden, F. E., m.	N. H.	500,000	100,000	5	*				217,000	Jan.	1896	.04
15	Big Six, g. s.	Colo.	500,000	500,000	1					2,500	May.	1896	.00½
16	Bi-Metallic, g. s.	Mont.	5,000,000	200,000	25	*				1,630,000	June.	1893	.10
17	Boston & M. Cons., g.s.c	Mont.	3,750,000	150,000	25	*				5,375,000	Feb.	1897	3.00
18	Brotherton, i.	Mich.	2,000,000	80,000	25	*				120,000	Mar.	1893	.50
19	Bullion, Beck & Champ.	Utah.	1,000,000	100,000	10	*				1,967,000	Jan.	1897	.20
20	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25					48,350,000	Feb.	1897	15.00
21	Cariboo.	B.C.	800,000	800,000	1					125,410	Dec.	1896	.02
22	Centen'l-Eureka, g.s.l.c	Utah.	1,500,000	30,000	50	30,000	Mar.	1889	1.00	1,890,000	Jan.	1897	1.00
23	Central, c.	Mich.	500,000	20,000	25	100,000	Oct...	1861	.65	1,970,000	Feb.	1891	1.00
24	Charleston, p. r.	S. C.	1,000,000	10,000	100	*				140,000	Dec.	1893	2.50
25	Clay County, g. s. c.	Colo.	60,000	60,000	1	*				52,000	Nov.	1891	.02
26	C. O. D., g.	Colo.	500,000	500,000	1	*				25,000	Mar.	1896	.01
27	Cœur d'Alene, s. l.	Idaho	5,000,000	500,000	10					340,000	June.	1893	.06
28	‡Cons. Cal. & Va., g. s.	Nev.	21,600,000	216,000	100	4,960,130	Jan.	1897	.25	3,898,800	Feb.	1895	.25
29	Cons. New York, g. s.	Nev.	10,000,000	100,000	100	168,000	Jan.	1896	.05	10,000	Feb.	1893	.10
30	Coptis, g. s.	Nev.	10,000,000	100,000	100					77,000	Feb.	1895	.01
31	Cortez, Ltd., s. g.	Nev.	1,500,000	300,000	5					735,000	Feb.	1893	.15
32	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1					87,500	Aug.	1896	.00½
33	Daly, s. l.	Utah.	3,000,000	150,000	20					2,887,500	Aug.	1896	.25
34	†Deadwood-Terra, g.	S. D.	5,000,000	200,000	25	*				1,240,000	Aug.	1896	.50
35	De Lamar, g. s.	Idaho	2,000,000	400,000	5	*				2,250,000	Oct.	1896	.25
36	Derbec Blue Gravel, g.	Cal.	10,000,000	100,000	100	110,000	June.	1893	.10	280,000	Aug.	1891	.10
37	Dexter, g. s.	Nev.	1,000,000	100,000	10	8,000	June.	1892	.08	100,000	Aug.	1893	.33
38	Elkhorn, s.	Mont.	1,000,000	200,000	5					1,212,000	June.	1895	.06
39	Elkton Cons., g.	Colo.	1,250,000	1,250,000	1					191,960	Jan.	1897	.02
40	Enterprise, g. s.	Colo.	2,500,000	500,000	5	*				825,000	May.	1893	.25
41	Eureka Cons., g. s. l.	Nev.	1,000,000	50,000	20	567,500	Feb.	1897	.25	5,112,500	Jan.	1892	.25
42	Evening Star, s. l.	Colo.	500,000	50,000	10	*				1,437,500	Dec.	1889	.25
43	Florence, s.	Mont.	2,500,000	500,000	5	*				118,096	Jan.	1897	.01
44	Franklin, c.	Mich.	1,000,000	40,000	25					1,240,000	Jan.	1894	2.00
45	Galena, g. s. l.	Utah.	1,000,000	100,000	10					71,000	Jan.	1897	.05
46	Garfield-Grouse, g.	Colo.	1,200,000	1,200,000	1	*				24,000	Dec.	1896	.01
47	Gold Coin, g. s.	Colo.	1,000,000	200,000	5	*				120,000	Feb.	1897	.10
48	Golden Eagle, g.	Colo.	1,000,000	1,000,000	1	*				10,000	Sept.	1896	.01
49	Golden Fleece, g. s.	Colo.	600,000	600,000	1	*				563,179	Dec.	1896	.01
50	Gold & Globe, g.	Colo.	750,000	750,000	1					36,000	Aug.	1896	.00 5/10
51	Gold Rock, g. s. c.	Colo.	500,000	500,000	1	*				28,750	Dec.	1891	.01
52	Granite Mountain, g. s.	Mont.	10,000,000	400,000	25	*				12,120,000	July.	1892	.20
53	Granite, s. l.	Idaho	500,000	200,000	2.50	*				83,400	Nov.	1890	.10
54	Gt. West'n Quicksilv., q.	Cal.	5,000,000	50,000	100					388,366	Nov.	1893	.10
55	Harquahala, g.	Ariz.	1,500,000	300,000	5					126,000	Nov.	1894	.12
56	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*				2,160,000	Jan.	1897	.50
57	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5	*				475,000	Aug.	1896	.04
58	Holmes, s.	Nev.	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	April.	1892	.25
59	Homestake, g.	S. D.	12,500,000	125,000	100	200,000	July.	1878	1.00	6,118,750	Jan.	1897	.25
60	Hope, s.	Mont.	1,000,000	100,000	10	*				662,252	Feb.	1897	.10
61	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,130,000	Jan.	1896	.12½
62	Iowa.	Colo.	1,000,000	1,000,000	1					60,000	Dec.	1896	.01
63	Iron Mountain, s. l.	Mont.	5,000,000	500,000	10	*				492,500	Nov.	1896	.06
64	Iron Silver, s. l.	Colo.	10,000,000	500,000	20	*				2,500,000	April.	1889	.20
65	Isabella, g.	Colo.	2,250,000	2,250,000	1					202,500	Sept.	1896	.01
66	Jack Rabbit, g.	Cal.	10,000,000	100,000	100	118,000	April.	1894	.02	260,000	April.	1891	.10
67	Jay Hawk, g.	Mont.	1,425,000	285,000	5					33,375	Dec.	1892	.12
68	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct...	1887	1.00	120,000	Dec.	1895	1.00
69	Kennedy, g.	Cal.	10,000,000	100,000	100					1,796,000	Aug.	1895	.48
70	Leadville Cons., s. l.	Colo.	4,000,000	400,000	10	*				316,000	Feb.	1893	.03
71	Little Chief, s. l. i-o.	Colo.	10,000,000	200,000	50	*				820,000	Dec.	1890	.05
72	Maid of Erin, g. s. c. l.	Colo.	3,000,000	600,000	5	*				740,000	Nov.	1895	.02
73	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*				1,150,000	Nov.	1896	.05
74	Mayflower Gravel, g.	Cal.	1,200,000	60,000	20					166,897	Dec.	1895	.10
75	May-Mazeppa Con., l. s.	Colo.	1,000,000	1,000,000	1	*				170,000	Oct...	1891	.03¾
76	Mercur, g.	Utah.	5,000,000	200,000	25	*				600,000	Jan.	1897	.12½
77	Minnesota Iron, i.	Minn.	16,500,000	165,000	100	*				3,240,009	July.	1896	1.50
78	Mollie Gibson, s.	Colo.	5,000,000	1,000,000	5	20,000	Jan.	1891	.02	4,080,000	Jan.	1895	.05
79	Monitor, g.	S. D.	2,500,000	250,000	10					45,000	Oct...	1890	.03
80	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*				2,890 637	Oct...	1895	.06¼
81	Montana Ore Purchas'g	Mont.	1,000,000	40,000	25	*				520,000	Jan.	1897	1.00
82	Moon Anchor Gold.		600,000	600,000	1	*				24,000	July.	1896	.01
83	Moose, g.	Colo.	600,000	600,000	1					186,000	Jan.	1896	.01
84	Morning Star Cons., s. l.	Colo.	1,000,000	100,000	10	*				1,025,000	Dec.	1891	.25
85	Mt. Diablo, s.	Nev.	5,000,000	50,000	100	145,000	Nov.	1896	.10	225,000	Aug.	1893	.25
86	Mt. McClellan, g. s. l.	Colo.	1,250,000	250,000	5	*				21,936	June.	1891	.03
87	Mt. Rosa, g.	Colo.	1,000,000	1,000,000	1					30,000	Oct...	1896	.00½
88	Napa, q.	Cal.	700,000	100,000	7	*				820,000	Jan.	1897	.10
89	New Elkhorn	Colo.	1,500,000	300,000	5					72,000	Sept.	1896	.24
90	New Guston, g. s. c.	Colo.	550,000	110,000	5	*				1,198,120	Oct...	1892	.25
91	New Hoover Hill, g.	N. C.	300,000	120,000	2.50	*				22,500	Dec.	1885	.20
92	N.Y.&Hon.Rosario, s.g.	C. A.	1,500,000	150,000	10	*				600,000	Jan.	1897	.10
93	North Banner, g. s.	Cal.	1,000,000	100,000	10	21,794	Oct...	1896	.02	20,000	July.	1891	.05
94	North Com'wealth, s.	Nev.	10,000,000	100,000	100	85,000	April.	1890	.25	25,000	June.	1891	.25
95	North Star, g.	Cal.	2,000,000	200,000	10	20,000	June.	1885	.02	450,000	June.	1893	.50
96	Nugget, g.	Colo.	1,000,000	1,000,000	1	*				10,000	Jan.	1895	.00½
97	Ontario, s. l.	Utah.	15,000,000	150,000	100					13,370,000	Jan.	1897	.10
98	Osceola, c.	Mich.	1,250,000	50,000	25	*				2,122,500	Feb.	1897	1.00
99	Pacific Coast Borax, b.	Cal.	2,000,000	20,000	100					422,500	July.	1893	1.00
100	Parrot, c.	Mont.	2,300,000	230,000	10	*				1,622,215	June.	1894	.05
101	Petro, s.	Utah.	1,000,000	10,000	100					17,500	July.	1891	.75
102	Pharmacist, g.	Colo.	1,200,000	1,200,000	1					80,000	Jan.	1893	.01
103	Portland, g.	Colo.	3,000,000	3,000,000	1	*				893,000	Jan.	1897	.01
104	Quicksilver, pref., q.	Cal.	4,300,000	43,000	100	*				1,823,911	June.	1891	1.25
105	" com., q.	Cal.	5,700,000	57,000	100	*				643,867	July.	1882	.40
106	Quincy, c.	Mich.	1,250,000	50,000	25	*				9,070,000	Feb.	1897	8.00
107	Reed National, s.	Colo.	500,000	500,000	1	*				45,000	Dec.	1890	.01
108	Robinson Cons., s. l.	Colo.	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
109	Running Lode, g. s. l.	Colo.	1,000,000	1,000,000	1	*				27,000	June.	1893	.00 1/10
110	St. Joseph, l.	Mo.	2,500,000	250,000	10					2,524,000	Dec.	1895	.25
111	Silent Friend, g. s. l.	Colo.	500,000	500,000	1	*				60,000	Aug.	1891	.25
112	Silver King, s.	Ariz.	10,000,000	100,000	100	272,858	Mar.	1897	.25	1,950,000	July.	1887	.25
113	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	3,000	Jan.	1897	.02	900,000	Jan.	1897	.25
114	Silver Mg. of L. V., s.	N. M.	500,000	500,000	1	*				300,137	Dec.	1891	.04
115	Small Hopes, s.	Colo.	5,000,000	250,000	20	*				3,275,000	Mar.	1896	.10
116	‖Smuggler Union, g. s.	Colo.	5,000,000	50,030	100					150,000	Oct...	1896	1.00
117	§Standard Cons., g. s.	Cal.	20,000,000	200,000	100					3,717,868	June.	1895	.10
118	Swansea, g. s. l.	Colo.	600,000	60,000	10	*				39,000	Sept.	1892	.10
119	Tamarack, c.	Mich.	1,250,000	50,000	25					4,770,000	Dec.	1896	3.00
120	Teal & Poe, s. l.	N. M.	150,000	150,000	1	*				9,000	Nov.	1891	.01½
121	Tom Boy, g.	Colo.	2,000,000	200,000	10	*				410,000	Mar.	1896	.20
122	Trinity River, g.	Cal.	500,000	500,000	1	*				15,000	July.	1893	.00½
123	United Verde, c.	Ariz.	3,000,000	300,000	10	*				562,500	Dec.	1893	.25
124	Union, g.	Colo.	1,250,000	1,250,000	1					73,000	June.	1896	.01
125	Union Leasing.	Colo.	500,000	500,000	1					340,000	July.	1895	.04
126	Utah.	Utah.	1,000,000	100,000	10	*				175,000	Nov.	1896	.02
127	Victor, g.	Colo.	1,000,000	200,000	5	*				705,000	Dec.	1896	.10
128	War Eagle	B.C.	500,000	500,000	1	32,500	Dec.	1894		187,000	Oct...	1896	.06
129	Woodside.	Utah.	1,000,000	100,000	10					25,000	Oct...	1889	.25
130	Yankee Girl, s.	Colo.	1,300,000	260,000	5					520,000	July.	1891	.25

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov..	1895	.01⅓
2	Ajax, g.	Colo..	1,000,000	1,000,000	1				
3	Alamo, g.	Colo..	1,000,000	1,000,000	1				
4	Alice, g. s. c.	Colo..	5,000,000	5,000,000	1	*			
5	Alliance, g. s. l.	Utah.	100,000	100,000	1	200,000	Dec..	1895	.10
6	Allouez, c.	Mich.	2,000,000	80,000	25	1,440,937	June.	1894	.20
7	Alpha Cons., g. s.	Nev..	10,500,000	105,000	100	257,500	Sept..	1896	.10
8	Alta, s.	Nev..	10,080,000	108,000	100	3,590,560	Jan..	1897	.05
9	American, c.	Idaho	5,000,000	500,000	10	*			
10	American Belle, g.s.c.	Colo..	2,000,000	400,000	5	*			
11	Anaconda, g.	Colo..	5,000,000	1,000,000	5				
12	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug..	1893	.20
13	Aola, g.	Colo..	1,000,000	1,000,000	1	*			
14	Argonaut Cons., g. s.	Colo..	1,000,000	1,000,000	1	*			
15	Atlantic Cable Cons.	Colo..	1,500,000	1,500,000	1	*			
16	Bahama, g.	S. D..	1,250,000	250,000	5	3,125	Sept..	1893	.00¼
17	Bankers, g.	Colo..	1,250,000	1,250,000	1	*			
18	Belcher, s. g.	Nev..	10,400,000	104,000	100	3,312,420	Sept..	1896	.25
19	Belle Isle.	Nev..	10,000,000	100,000	100	240,271	July..	1896	.10
20	Ben Hur, g.	Colo..	900,000	900,000	1				
21	Blue Bell, g.	Colo..	500,000	500,000	1	*			
22	Blue Jay Cons., s. l.	Utah.	2,000,000	400,000	5	4,750	July..	1893	.004
23	Bob Lee, g.	Colo..	1,200,000	1,200,000	1	*			
24	Bullion, s. g.	Nev..	1,000,000	100,000	100	3,040,000	Feb..	1897	.10
25	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10				
26	Burlington, g. s.	Cal..	10,000,000	100,000	100	3,000	May..	1896	.03
27	Buskhorn, g.	Colo..	900,000	900,000	1				
28	Butte Queen, g.	Cal..	1,000,000	100,000	10	16,000	Feb..	1893	.10
29	Calumet, g.	Colo..	1,400,000	1,400,000	1	*			
30	Central Lead, l.	Mo..	400,000	4,000	100	*			
31	Central North Star, g.	Cal..	1,000,000	100,000	10	10,000	July..	1893	.10
32	Challenge, s, g.	Nev..	5,000,000	50,000	100	300 000	Nov..	1896	.10
33	Chollar, g. s.	Nev..	11,200,000	112,000	100	2,021,600	July..	1896	.25
34	Chrysolite, s. l.	Colo.	10,000,000	200,000	50	*			
35	Cleveland Cliffs, l.	Mich.	5,000,000	50,000	100	*			
36	Columbine, g.	Colo..	1,000,000	1,000,000	1	*			
37	Confidence, g. s.	Nev..	2,496,000	24,960	100	1,636,974	Sept..	1896	.30
38	Cons. Imperial, g. s.	Nev..	5,000,000	50,000	100	2,082,000	Aug..	1896	.01
39	Copper Mountain, g.	Colo.	1,000,000	1,000,000	1	*			
40	Creede & C. C., g.	Colo..	800,000	800,000	1				
41	CrippleCreekCons., g.	Colo..	2,000,000	2,000,000	1				
42	Crip.Cr'k Gold Expl'n	Colo..	1,800,000	1,800,000	1				
43	Dante, g.	Colo..	1,250,000	1,250,000	1	*			
44	Denver City, s.	Colo..	5,000,000	500,000	10	*			
45	Denver Gold, g.	Colo..	300,000	60,000	5				
46	Dickens-Custer, g. s.	Colo..	2,100,000	420,000	5				
47	Enterprise, g.	Colo..	800,000	800,000	1				
48	Eureka Con. Drift, g.	Colo..	500,000	500,000	1	90,000	Oct..	1892	.07
49	Exchequer, g. s.	Nev..	10,000,000	100,000	100	725,000	Dec..	1896	.05
50	Favorite, g.	Colo..	1,200,000	1,200,000	1	*			
51	Fortunatus, g. s.	Colo..	100,000	100,000	1	*			
52	Found Treasure, g. s.	Nev..	10,000,000	100,000	100	55,770	Jan..	1892	.50
53	Franklin Gold, g.	Colo..	1,000,000	1,000,000	1	*			
54	Free Coinage, g.	Colo..	1,000,000	1,000,000	1	*			
55	Galena, l. s.	Idaho	500,000	500,000	1				
56	Garden City, g.	S. D..	2,500,000	250,000	10	2,898	Sept..	1891	.001⅓
57	Gem, g.	Cal..	10,000,000	100,000	100				
58	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July..	1896	.00⅙
59	Golden Age, g.	Colo..	1,000,000	1,000,000	1	*			
60	Golden Dale, g.	Colo..	2,000,000	2,000,000	1	*			
61	Golden Fleece Grav. g	Cal..	130,000	130	1000	56,000	Aug..	1892	2.00
62	Gold Flat, g.	Cal..	1,000,000	100,000	10	13,000	Aug..	1893	.03
63	Gold King, g.	Colo..	1,000,000	1,000,000	1	*			
64	Gold Rock, g.	Colo..	1,000,000	1,000,000	1	*			
65	Gold Standard, g.	Colo..	1,000,000	1,000,000	1	*			
66	Gould & Curry.	Nev..	10,800,000	108,000	100	4,850,400	Jan..	1897	.15
67	Ha & Norcross, g. s.	Nev..	11,200,000	112,000	100	5,786,800	Jan..	1897	.25
68	Hartshorn, g. s.	S. D..	1,250,000	250,000	5	8,750	Sept..	1891	.00½
69	Head Cent. & Tr., g.s.	Ariz.	2,000,000	200,000	10	22,824	Mar..	1892	.03
70	Hidden Treas., g. s.	Cal..	20,000	20,000	1	1,000	Nov..	1893	.05
71	Himalaya, s. l.	Utah.	1,800,000	180,000	10	10,000	Oct..	1892	.01
72	Idaho Co., Ltd., g.	Idaho	160,000	1,000	100	*			
73	Idlewild, g.	Cal..	1,000,000	100,000	10	*			
74	Inez, s. l.	Idaho	1,000,000	1,000,000	1	*			
75	Jack Pot, g.	Colo..	1,250,000	1,250,000	1				
76	Jackson, l.	Mich.	300,000	12,000	25	*			
77	Justice, g. s. c.	Colo..	500,000	500,000	1	*			
78	Keystone, g.	Colo..	1,500,000	1,500,000	1	*			
79	Kingman Silver, g. s.	Ariz..	10,000,000	100,000	100	5,000	Sept..	1891	.05
80	Lacrosse, g.	Colo..	1,000,000	100,000	10	*			
81	Lottie Gibson, g.	Colo..	1,000,000	1,000,000	1				
82	Matoa, g.	Colo..	5,000,000	1,000,000	5				
83	Mayflower, g	Colo..	1,000,000	1,000,000	1	*			
84	Mexican, g. s.	Nev..	10,080,000	100,800	100	3,084,080	Nov..	1896	.20
85	Michigan Gold., g. s.	Mich.	2,500,000	100,000	25	40,000	Mar..	1892	.10
86	Milwaukee, s. l.	Idaho	500,000	500,000	1				
87	Modoc Chief, g. s. l.	Idaho	1,000,000	200,000	5	4,375	Jan..	1892	.00½
88	Monarch, g.	Colo..	1,000,000	1,000,000	1				
89	Mutual, g.	Colo..	500,000	500,000	1				
90	Neath, g.	Colo.	1,000,000	100,000	10				
91	New Gold Hill.	N. C..	1,750,000	350,000	5				
92	New Viola, s. l.	Idaho	750,000	150,000	5	*			
93	North Belle Isle, s.	Nev..	10,000,000	100,000	100	523,074	July..	1896	.10
94	Occidental Cons., g.s.	Nev..	10,000,000	100,000	100	453,652	Dec..	1896	.15
95	Original Keystone, s.	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10
96	Oro Cache, g. s.	S. D..	1,250,000	250,000	5	6,250	July..	1893	.00⅛
97	Orphal Bell, g.	Colo..	1,000,000	1,000,000	1				
98	Overman Silver, g. s.	Nev..	1,152,000	115,200	100	4,188,560	Dec..	1896	.10
99	Pappoose, g.	Colo..	2,000,000	2,000,000	1	*			
100	Peer, s.	Ariz..	10,000,000	100,000	100	215,000	July..	1894	.05
101	Peerless, s.	Nev..	10,000,000	100,000	100	410,000	July..	1894	.05
102	Pine Hill, g.	Cal..	1,000,000	100,000	10	25,000	Jan..	1897	.05
103	Pioche Con., g. s. l.	Nev..	20,000,000	2,000,000	10	*			
104	Potosi, g. s.	Nev..	11,200,000	112,000	100	2,021,600	Nov..	1896	.05
105	Princess, g.	Colo..	1,000,000	1,000,000	1				
106	Puritan, g, s.	Colo..	1,500,000	150,000	10	*			
107	Quincy, c.	Colo..	3,000,000	300,000	10				
108	Red Mountain, s.	Colo..	300,000	60,000	5	22,500	Mar..	1891	.12½
109	Ruby & Dun., g. s. l.	Nev..	25,300	506	25	*			
110	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July..	1895	.05
111	Savage, g. s.	Nev..	11,200,000	112,000	100	1,051,400	Jan..	1897	.20
112	Seg. Belcher & M., g.s.	Nev..	10,000,000	100,000	100	340,000	Nov..	1896	.10
113	Silver Age, g. s. l.	Colo..	2,000,000	200,000	10	*			
114	Silver Hill, s.	Nev..	10,800,000	108,000	100	1,992,600	July..	1894	.05
115	Silver Queen, c.	Ariz..	5,000,000	200,000	25	*			
116	Silver State, g.	Colo..	700,000	700,000	1	*			
117	Siskiyou Con., s.	Cal..	2,000,000	200,000	10	44,000	June.	1896	.01
118	Specimen, g.	Colo..	1,200,000	1,200,000	1				
119	Temonj, g.	Colo..	1,000,000	1,000,000	1				
120	Tombstone, g. s. l.	Ariz.	12,500,000	500,000	25	*			
121	Tornado Con., g. s.	Nev..	100,000	100,000	1	*			
122	Union Con., g. s.	Nev..	10,000,000	100,000	100	2,545,000	Sept..	1896	.20
123	Utah Cons., s.	Nev..	10,000,000	100,000	100	420,722	Feb..	1897	.05
124	Victory, g. s.	S. D..	1,250,000	250,000	5	2,625	Nov..	1896	.00⅛
125	Virginia M. Cons., g.	Colo..	1,000,000	1,000,000	1				
126	Waterloo, g.	Cal..	2,000,000	200,000	10	30,000	Aug..	1893	.15
127	West Granite Mt., s.	Mont.	500,000	100,000	5				
128	Whale, g. s. l.	Colo..	500,000	500,000	1	*			
129	Work, g.	Colo..	1,250,000	1,250,000	1				
130	World, g.	Colo..	1,500,000	1,500,000	1	*			

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. †The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000.
‡ Previous to the consolidation in August, 1884, the California had paid $31,320,000 in dividends and the Cons. Virginia $42,390,000. ‖ Dividends paid since consolidation.
§ Bodie, Bul